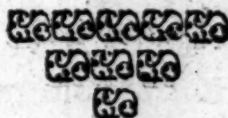


8 Ma
K THE *Howard*
G R O U N D S
O F
P H Y S I C K

Containing so much

Of PHILOSOPHY, ANATOMY, CHIMISTRY,
and the MECHANICAL CONSTRUCTION
of a Humane Body, as is necessary to the
Accomplishment of a Physitian: With
the Method of Practice in Common Di-
stempers.

Extracted from the most Eminent Authors,
both Antient and Modern.



L O N D O N,

PRINTED by J. Dover, for W. Taylor, in Pater-
Noster-Row, J. Osborn, in Lombard-street, and J. Pym-
berton, in Fleet-street. MDCCXV.

13

THE
GROUNDS
OF
PHYSIC



Handwritten signature or initials, possibly 'JH' or 'JL'.

Extracted from the most eminent Authors
both Ancient and Modern.

L O N D O N

PRINTED by J. D. for W. Taylor, in Pall-
mall, near the Theatre, and J. Lewis,
in the Strand, MDCCLXXV.

THE
PUBLISHERS
Advertisement.

WHEREAS the following Sheets came to my Hands without any Preface, as never intended to be made Publick, so I think it needful to advertise the Reader, that the Reason of their appearing in this manner, is; because I have not met with so much useful Learning, within so small a Compass, in any thing yet Extant; and therefore hope the Advantage several may receive by its Perusal; will be an Excuse for my Pains herein, and a sufficient Recommendation of it to the World.

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THE



THE
GROUNDS
OF
PHYSICK.

Part the First.

PHYSIOLOGY.

CHAP. I.



WHAT is Physick?

Physick is the Art of Preserving present Health, and restoring that which is lost: Or it is, the Knowledge of those Things (as will appear by what follows) by whose Application Life and Health is maintained, and Distempers are healed.

B

Whence

Whence had Physick its Rise?

From Distempers, which happen to Men from the Injuries of Weather, from the Nature of some Meats and Drinks, from the Ways of Living, and sometimes from the Make of the Constitution it self.

What does ancient History relate of Physick?

That the Chaldeans, Babylonians, and Magi, first practised it for this Purpose, to take away present Diseases, and to avoid falling into them.

How did it make its Progress?

Hence it was carried into Egypt, and from thence into Greece; amongst the latter it has most flourished in Cnidus, Rhodes, and the Coan Islands.

To what was owing its first Rudiments?

The first Rudiments of this Art were owing to Chance, to natural Instinct, and unforeseen Accidents.

Into how many Parts is Physick divided?

Into five,

Pyhiological,
Hugienical,
Pathological,

Semejotick,
and
Therapeutick.

To what is owing the Progress of Physick?

The Registering of Events; for Distempers and their Remedies were set down upon Tables, and repositied in the Temples of the Gods; the Sick also were placed in the publick Ways, and Marker-Places; and such like Methods were made use of.

Whence had this Art its further Improvement?

From the Appointment of Physicians, from an exact

exact Description of Distempers, and from a more accurate Observation and Application of Remedies.

What may be gathered from the foregoing ?

That Physick had its first Rise *Experience the first Support of Physick.*
from a faithful Collection only of Experiments.

Afterwards from a just Reasoning *Reasoning another Support of Physick.*
upon their Causes.

The first of these was always the same from Necessity, Custom, and Authority ; but the latter has been mutable, and differing almost upon every Account.

What is the End of Physick ?

Its ultimate End is Health ; but its subordinate End the Mitigation of Symptoms. Health while it is enjoyed is to be preserved by it, and by it when lost, to be restored ; the first is termed *Hu- giene*, and the other *Therapeutick*.

N. B. Hereto it is no Objection that some Diseases are incurable, for such the Physician does not meddle with, as lying without the Reach of his Art ; although indeed such are described, not as they are proper Objects of Medicine, but that they may be known and predicted, in order to save the Reputation of a Physician.

Pray something more explain this Matter.

The End of Physick is to avoid Pain, Weakness, and Death : And therefore it is for the Preservation of present Health in a Man, and for the Reparation of it when lost. Hence whatsoever is to be known and practised in this Art, ought to be with this only Regard.

What is the Object of Physick?

Man ; that is, his Life, Health, Distempers, and their Causes ; and the Means by which these are carried on.

What further is of any great Service in Physick?

Anatomy, by which the Bodies of sound Persons are inspected, the hidden Causes of Diseases are discovered, and the evident Springs both of Health and Sicknes are with great Skill laid open ; and the Rise, Growth, State, Declination and Event of the latter manifested by the various Changes.

Anatomy shows that a humane Body is to be considered in a twofold Respect, that is, as it consists of *Solids*, and of *Fluids*.

What are the Solid Parts?

The Solid Parts are the Vessels, which contain the Fluids, or are Mechanical Instruments, as the Bones and Cartilages. The Fluids are all contained in the Vessels, and by them propagated and determined in their Motions.

And what further ?

The Choice, Preparation, Application, Vertues, and Efficacies of Remedies are to be well observed. *Democritus*, who lived in the Time of *Hippocrates*, employed his Time in the Dissection of living Animals.

Did Physick continue long in that State after the Time of Hippocrates ?

No ; for after *Hippocrates* it was divided into several Sects, under various Denominations : So *Thessalus* and his Disciples were called *Methodists* ; *Heracion* and his Followers, *Empericks* : until at length *Galen*, who violently inveighed against all these

these Sects, more skilfully reduced Physick into a Science.

How long did the Galenical Doctrine continue?

Until the Time of the *Arabians*, who erected a Physick School in *Africa*: They only commented upon what *Galen* had taught, as themselves were afterwards by the succeeding Ages.

How were their Doctrines at last refined and corrected, in what Countries, and by what Means?

The Doctrine of *Hippocrates* was at last restored in the *Gallican Academies*, by the Practice of Chymists; most by *Paracelsus*, and afterwards by *Helmont* and others.

How is Physick at this Time cultivated?

Of late Years it has very much been improved from *Mechanicks*, *Physicks*, and *Chymistry*; and at this Time is free from all Sects.

What are the Means by which this Art is acquired?

They are twofold; *Observation* and *Ratiocination*.

What is Observation?

Observation is the Notice of all those Things which happen to a Man in Health or Sicknes, dying or dead, not only what naturally arises in such States, but also what is occasioned therein by Art, Accident, and external Means.

What is Ratiocination?

Just *Ratiocination*, is that by which all those Things which happen to a humane Body, whether apparent to the Senses or not, are to be investigated and demonstrated; to which Purpose every Experiment is to be considered, and to be compared with others, and all those things taken Notice

of from whence any thing can by Reason or Experience be deduced.

How many are the Natural Things in Physick?

Seven; viz. Elements, Temperaments, Humours, Spirits, Parts, Faculties, Actions, or Uses.

What are the Non-Naturals?

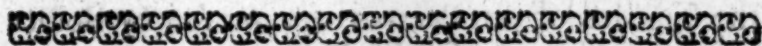
The Non-Naturals are six; viz. Air, Meats and Drink; Motion and Rest; Sleep and Watching; what's excreted or retained; and the Affections of the Mind.

What are the Things which are contrary to Nature?

The Things which are contrary to Nature are three; viz. Disease, the Causes of Diseases, and the Symptoms of Diseases.

Upon these three depend the Whole Art of Physick.

C H A P.



CHAP. II.

WHAT are Elements?

Elements are Simple Bodies from whence all the Visible Bodies of this World are first compounded, and into which they are ultimately resolved.

The Union or Conjunction of Elements in a Body is called Mixture; as the Body compounded of these Elements, the Mixed.

According to the Philosophy of the Moderns, there are three Elements; that is to say, *Æther*, or a subtle Matter, or the first Element, which consists of Particles extremely fine and subtle, always in a rapid Motion, and of an indefinite Smallness, that is, of which some are infinitely smaller than others: It is more fine in the Body of the Sun, and in the fixed Stars, than in our culinary Fires, which are made up from this Element. It is to be found in the Pores almost of every Body, which it continually and swiftly passes through, as another Ocean through the World; by exerting its Force also upon all Bodies, where it cannot meet with free Passage, it is thereby in Liquids, the Cause of Fermentation; of which more hereafter.

This subtle Matter is the Cause of Heat and Cold; for by Agitating some Corpuscles, and vehemently driving them into the Fibriles of our Nerves, causes in us the Sense of Heat, as on the

contrary the Sense of Cold is excited in us, when the Fibriles of our Nerves are moved by Bodies less agitated by the subtile Matter.

This subtile Matter is threefold; in some Bodies it shines and is hot, as in a Candle. 2. In others it does not shine and is hot, as in quick Lime sprinkled with Water, as also in our Blood. 3. In others again it shines and does not heat, as in Amber, in some Worms, Sea-fish, Rotten-wood, and other Things shining in the Dark, which for that Reason are called *Noctiluca*.

Another, is the second Element, or *Ethereal*, or *Celestial Globules*, which consists of certain round Particles, polished, and very small, but larger indeed than the Particles of the first Element, which according to its various Impulses upon the Drum of the Ear, is to us the Occasion of Sound.

The *Ethereal Globules* as they stream from an enlightened Body, and are dard into the Fibriles of the Optick Nerve, by their Means some Motion is carried on to the Seat of the Soul, which excites in us that Sensation which we call Vision, and that variously, according to the different Motions of the Rays and Position of the Globules to one another, and the Modifications of the Diaphanous Body; or the transmitted Light, by Means of those Globules which strike upon the *Retina*, and are thence conveyed through the Optick Nerves, determines the Mind to the Perception of this or that particular Colour.

Lastly, the third Element, or the Terrestrial Matter consists also of Particles sufficiently small, but yet larger than either those of the first or second Elements.

Aristotle

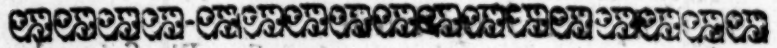
Aristotle assigned four Elements, which were Fire, Air, Water and Earth.

It is enough for the purpose of a Physician that he knows that our Bodies are originally compounded of Particles much different in Figure and Magnitude, *v. g.* some gross, slender, heavy, light, soft, hard, flexible, rigid, sharp, ramous, blunt, and the like.

The Chymists set up Salt, Sulphur and Mercury, because by the Force of Fire the same are to be drawn from many Bodies, but not justly, for Gold, burnt Chalk, Glass, &c. cannot by any degree of Fire whatsoever be resolved into any of them.

So we see that humane Blood may be resolved into Phlegm, Salt, Oil, Spirit, and Earth; as the like may also be done with Harr's Horn; but because Salt, Sulphur, and Mercury may be drawn from any Bodies by Fire, it does not therefore follow that they were the first Principles of such Bodies, for it is not unlikely that their Production may be owing very much to the Action of the Fire upon those Bodies, and therefore they cannot justly be deemed Principles altogether uncompounded.

C H A P



C H A P. III.

AS an Appendix to that of Elements I might add something not foreign to our Purpose.

That our Bodies would soon perish, without they be daily renewed by fresh Recruits ; what is thus taken in, appears to the Senses.

Then Experience will teach us, that this Change of Food into the Substance of our Bodies is much more easily carried on in some particular kinds and from the manner of preparing them before Ingestion.

Hence proper Nourishment is procured from Corn by Trituration, and the Help of Fire,

Hugiene teaches the Nature of Pickles, and the Variety of Drinks. In Fruits there is very little Preparation, besides that Maturation which is made by Nature or Art ; no more being required to render them fit for Nourishment than a Separation of their Parts, Comminution, Mixture, a Disposition to a State of Fluidity, and a Separation of the grosser from the more fine Parts.

C H A P.

CHAP. IV.

Of a Temperament in general, and some of its Kinds.

WHAT is a Temperament in general?
A Temperament in general is a convenient Proportion of Elements, and their Combination into sensible Bodies.

How is a Quality divided?

Into Primary and Secondary.

Amongst the Primary Qualities that are most considerable, are these four; Heat, Cold, Moisture and Dryness; amongst all which, that which predominates over the rest, denominates the Temperament.

How is a Primary Quality considered by Physicians?

Twofold; the one as it actually is so, by which it immediately and at the first Touch affects us; the other is so potentially.

Of the first kind are our common Fires, and the Coldness of Water.

From the Changes of these it may be observed that the Alterations in our Bodies do arise: Those Things which are taken in for Nourishment, are either Solids or Liquids, and upon that Account either Meats or Drinks; the first Supplies of these were only from Water, and what naturally grew out

out of the Earth ; as is testified both by sacred and prophane History, and is manifest from Nature it self.

Then the Solids, and some of the Fluids of Animals were added to, and prepared with those Foods which the Earth produced ; yet some Nations lived wholly upon Vegetables ; *Nebuchadnezzar* fed altogether upon Grass.

What then ?

Since a Man uses all these Things mixed or separate, raw or prepared ;

Since by their Use the Body lives, grows, and is nourished, and that by Variety of Food the sensible Qualities are hardly distinguishable ; it is manifest that all such Productions both of Water and Earth are convertible into the Fluids and Solids of a humane Body.

I desire you would more fully explain those Qualities you were speaking of ?

I will so ; A Quality is *potentially* Primary, as Heat in Pepper, Cold in Lettice, &c.

ACTUAL HEAT, *à parte Rei*, (that is in the Subject) is a strong, swift, and confused Motion of the insensible Particles of any Body.

ACTUAL COLD, *à Parte Rei*, is a Privation of a strong, swift, and confused Motion of the Particles of any Body.

POTENTIAL HEAT, *à Parte Rei*, is such a Disposition of the Particles in any Body, as acquires or forms such Pores, that occasions the *Æther*, or subtile Matter more rapidly to move it self in them, and excite Heat, as Heat in Pepper ; whence those Things heat us which put our constituent

constituent Particles into a brisk and confused Motion.

POTENTIAL COLD, à *Parte Rei*, is such a Disposition of the Particles in any Body, as acquires or forms such Pores, that occasions the *Æther*, or subtile Matter to move more slowly therein, as the Cold in Lettice occasions Cold in us; whence these Things give us a Sense of Cold, which are sufficient to resist, diminish and change the swift and confused Motion of the component Particles of our Bodies.

That *Heat* consists in the aforesaid Motion, and *Cold* in its Privation, appears from hence, that where-ever there is such a Motion, there is also *Heat*, and wheresoever it is wanting, there also is *Cold*.

A *Partial Temperament*, is that which is particular to every distinct Part; as that of the Brain, and the Heart, &c.

A *Temperament of the whole*, is that which arises from the Composition of the several Parts together; as that of the Body of *John*.

A *Temperament* is further divided into innate and acquired.

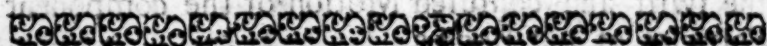
An *innate Temperament* is that which happens to every one naturally, or from their first Formation.

An *acquired Temperament* is that which arises in the Course of Life, from the Non-naturals, or such Things as are contrary to Nature.

That which is *innate* does not continue exactly the same through the whole Course of Life, altho' it might be kept so by an exact Use of the Non-naturals; yet notwithstanding it is much more fixed

fixed than the *acquired*, because it is more deeply rooted, and if by the Opposition of Contraries it is not altogether subdued, it either will not give way, or else is soon restored again; from whence in Children it is very difficultly destroyed.

The *innate* resides chiefly in the Blood and Spirits, to which the other Parts derive their particular Tempers.



CHAP. V.

Of the Oeconomy of a Humane Body.

WHilst we are upon the *Physiological Part*, it will not be amiss something more particularly to describe the Oeconomy of a humane Body: At the Conclusion of the *Third Chapter*, we touched upon the Secretion of the grosser Parts; in order to the better Understanding of which, we shall explain that new Form into which the Food is changed in the Mouth, by the Organs of that Part. This is principally brought about by Mastication, which is perform'd after the following manner.

1. By drawing down the lower Jaw from the upper, by the Contraction of two slender, long, double-bellied Muscles, which have their Rise from the higher Part of the *Processus Mastoideus*, and at the *Styloformis* end in a round Tendon, which passes through the *Stylohyodeis*, and annular Liga-

ment

ment affixed to the *Os Hyoides*; and thence by a New Belly descends down and is inserted into the middle of the inferior Part of the Chin. *Vesal. L. 2. T. 5. Lit. H. 1.*

2. By the bringing back the lower Jaw and its Compression against the upper, by the Contraction of the following Muscles.

1. Of the *Temporal*, which arising from the Bones of the *Vertex*, Forehead, and Temples, with a cuniform, strong, and sharp Tendon, insert themselves into the Extremity of the sharp Process of the inferior *Maxilla*. (*Vesal. L. 2. T. 5. L. B.*)

2. Of the *Masseters*, which are Triangular, thick, and short Muscles, arising out of the *Os jugale*, and upper Jaw; from the Corner of the Eyes they pass on almost to the Ears, and insert their Tendons into the inward Margin of the lower Jaw; the Directions of their Fibres variously cutting one another in accute Angles. (*Vesal. L. 2. T. 5. L. D.*)

3. The Food being conveniently broke into Pieces by the *Dentes incisorii*, is shut up in the Mouth by the Compression of the Lips and Cheeks from their proper Muscles, chiefly by Means of the *Sphincter* of the Lips and *Buccinator*. (*Vesal. L. 2. T. 4. Lit. M. N.*) as also by the Help of the Tongue, acted by its proper Muscles, (*Malpig. de Lingua*) it is rolled about upon the Tops of the *Dentes Molares*, which are unequal, hollow, and gagged, and while 'tis there detained, is squeezed, ground, and attenuated by the Motion of the lower Jaw; to which Purposes the compressive Motion is chiefly conducive. 2. Then its Motion is forward

forwarded by the external *Pterigoides*, which arise from the outer Part of the *Alæ Vespertilionum*, and running backwards, are inserted between the *Processus condyliformis* and the *Corona*; and by the Help of the various Fibres of the *Temporal* Muscles and *Masseters*. (*Vesling. Fab. Cap. XIII. Fig. 2. Lit. E. E*) 3. Its backward Motion is assisted by the various Fibres of the *Masseters* and *Temporals*, acting in Concurrence with the *Biventre*s. 4. Its lateral Motion is occasioned by the internal *Pterygoides*, which rising out of the internal Part of the *Processus Vespertilionis*, are inserted by a strong Tendon into the interior back Part of the Jaw, (*Vesal. L. 2. T. 6. L. D.*) but it is plain that by the Concurrence of the whole acting together, their Effecacies are also variable. Thus the Food is ground, is thrust between the Grinders by the Tongue, and its different Parts are exposed to all manner of Triture, and so *Mastication* is performed. By this Motion of *Mastication* such like Changes, (*as in the last Chapter of Elements*) do happen to the Food. But there are also many other Parts about the Mouth necessary to be known.

Near the *Parotide* conglomerate Glandule, there is also another Conglobate One, from whence the Spittle continually flows out into the Mouth, thro' a Passage, opening about the third upper Grinder. (*Steno Observat. Anat.*) and from the *Maxillaries* (*Wharton C. 21*) and *Sublinguals* of *Bartholine* (*Philos. Transact.*) the *Mucus* and Spittle, (*Schneider de Catarrh. Lib. 3. S. 2. C. 3. Fig. 2, 3, 4*) continually ouzes out in those that are in Health. Whilst the Spittle remains in the Mouth it is very frothy,

frothy, and to those who are very hungry, it is most plentiful, fluid, and sharp; and in those who are quite fasting, so much as to deterge Pustules, Scars, and to wear away Spots; mixed with Crumb of Bread it ferments it; and with the Juice of Vegetables it makes them grow hot, and change into inflammable Spirits; by Brutes, sleeping, and found Persons it is swallowed.

By too large a Secretion of Spittle, *Loathing*, *Indigestion*, and *Atrophies* are occasioned: in healthy Persons it is tasteless. It consists of Water, Salt and Spirit, as appears upon a Chymical Evaporation.

The Food being broke by Mastication, the *Saliva* which is squeezed out of its Cell is mixed with it, and that being drawn from the arterious Fluid is agreeable to the rest of the Fluids in the Body; and therefore this Mixture conduces,

1. To the Similitude of the Body to be nourished.
2. To the Mixture of Oils with aqueous Particles.
3. To the Solution of Salts.
4. To a kind of Fermentation.
5. To the Change of Taste and Smell.
6. To raise an intestine Motion.
7. To speedy Refection.
8. To seasoning what is insipid.

C

How

forwarded by the external *Pterigoides*, which arise from the outer Part of the *Ala Vespertilionum*, and running backwards, are inserted between the *Processus condyliformis* and the *Corona*; and by the Help of the various Fibres of the *Temporal Muscles* and *Masseters*. (*Vesling. Fab. Cap. XIII. Fig. 2. Lit. E. E*) 3. Its backward Motion is assisted by the various Fibres of the *Masseters* and *Temporals*, acting in Concurrence with the *Biventre*s. 4. Its lateral Motion is occasioned by the internal *Pterygoides*, which rising out of the internal Part of the *Processus Vespertilionis*, are inserted by a strong Tendon into the interior back Part of the Jaw, (*Vesal. L. 2. T. 6. L. D.*) but it is plain that by the Concourse of the whole acting together, their Effecacies are also variable. Thus the Food is ground, is thrust between the Grinders by the Tongue, and its different Parts are exposed to all manner of Triture, and so *Mastication* is performed. By this Motion of *Mastication* such like Changes, (*as in the last Chapter of Elements*) do happen to the Food. But there are also many other Parts about the Mouth necessary to be known.

Near the *Parotide* conglomerate Glandule, there is also another Conglobate One, from whence the Spittle continually flows out into the Mouth, thro' a Passage, opening about the third upper Grinder. (*Steno Observat. Anat.*) and from the *Maxillaries* (*Wharton C. 21*) and *Sublinguals* of *Bartholine* (*Philos. Transact.*) the *Mucus* and Spittle; (*Sehneider de Catarrh. Lib. 3. S. 2. C. 3. Fig. 2, 3, 4.*) continually ouzes out in those that are in Health. Whilst the Spittle remains in the Mouth it is very frothy;

frothy, and to those who are very hungry, it is most plentiful, fluid, and sharp; and in those who are quite fasting, so much as to deterge Pustules, Scars, and to wear away Spots; mixed with Crumb of Bread it ferments it; and with the Juice of Vegetables it makes them grow hot, and change into inflammable Spirits; by Brutes, sleeping, and sound Persons it is swallowed.

By too large a Secretion of Spittle, *Loathing*, *Indigestion*, and *Atrophies* are occasioned: in healthy Persons it is tasteless. It consists of Water, Salt and Spirit, as appears upon a Chymical Evaporation.

The Food being broke by Mastication, the *Saliva* which is squeezed out of its Cell is mixed with it, and that being drawn from the arterious Fluid is agreeable to the rest of the Fluids in the Body; and therefore this Mixture conduces,

1. To the Similitude of the Body to be nourished.
2. To the Mixture of Oils with aqueous Particles.
3. To the Solution of Salts.
4. To a kind of Fermentation.
5. To the Change of Taste and Smell.
6. To raise an intestine Motion.
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8. To seasoning what is insipid.

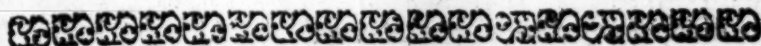
How then can the Saliva, useful to so many Purposes, and elaborated by so much Art, be rejected, and accounted an Excrement?

By the Action of Chewing, and Mixture of the *Saliva*, the Air insinuates into the Bits of Food, which afterwards by its Elasticity, Fluidity, and other Properties, and varying every Moment from the different Pressures it undergoes, it hastens the Digestion, Attenuation, Fluxibility and intestine Motion of the masticated Food.

The most voracious and ravenous Animals chew their Food the least; by long Mastication the Food is turned even to Chyle in the Mouth, and at such Times Hunger is much the sooner satisfied thereby.

Hence it appears that this Action is not only necessary, but also very conducive to Health.

C H A P.



C H A P. VI.

*Of the Temperaments of some particular Parts,
and their Signs.*

OF what Quality are the several Parts of the Body?

All the Parts of a Body in themselves are hot and moist; as by those Qualities Life is continued: but considered with Respect to one another, they are so remarkably different, that some of them are justly termed hot, others cold, some moist, and others dry.

According to this Division those which are reckoned hot, are the Heart, Blood, Spirits, Arteries, Veins, Lungs, Spleen, Liver, &c. The Heart is of the hottest Quality of them all. The Spirits are not the hottest: For although they are swiftly moved, yet not with that Vehemence as is sufficient to acquire Heat, for if so, the Nerves would be the hottest Parts of all.

The Parts which are cold are, the Bones, Cartilages, Tendons, Membranes, Ligaments, Spinal Marrow, &c.

According to the Difference also of Age and Sex, the Temperament is different.

What is a Sex?

It is what arises from the particular Conformation

mation and Temper of the Parts belonging to Generation.

How many Sexes are there?

Two, Male, and Female.

Which is the hotter?

The former is hotter than the latter, although I confess there are some *Virago's* amongst the Women, hotter than Men, and are endued with all that is peculiar to the Men.

What is Age?

Age is any particular Part of humane Life, from whence some considerable Change arises.

The Cause of Ages, is a different Proportion of the Native Heat, in some particular Part of Life, occasioned either by the Non-Naturals, or by what is contrary to Nature, From whence Ages are not circumscribed in all according to a certain Term of Years, but comes upon some sooner and others later, some growing old faster than others.

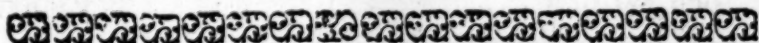
How is Age divided?

Into Eight Parts: 1. *Infancy*, which reaches to the third Year. 2. *Childhood*, to the tenth. 3. *Maturity*, to the eighteenth. 4. *Adolescence*, to the five and twentieth. 5. *Youth*, to five and thirty. 6. *Manhood* to five and fifty. 7. *Old Age*, to sixty five. 8. *Decrepid Old Age*, which includes the rest of his Life.

How is Old Age preserved?

By Food of great Nourishment and easy Digestion, by generous Wines, or their Spirits, which fortifie the Languishing Heat, and prevent superfluous Moistures, or Rheums.

C H A P.



C H A P. VII.

Of the Natural and innate Heat, &c.

HA V I N G gone through the Temperaments, it will not be amiss to add something concerning the Natural Heat, &c. according to the Variations of which, we shall likewise find the Temperaments to be often changed.

What is the Natural Heat ?

The Natural Heat, *a Parte Rei*, is nothing else than a swift and confused Motion of the subtile Matter, or of little Sparks, which although they do not shine (as is found in Quick-Lime sprinkled with Water in several Chymical Ferments, in Horse-Dung, and putrifying Plants) yet are hot, and differ from our culinary Fire only in degree, and some fine Particles of the Blood it self, driven about by them.

Whence does that Motion arise ?

From hence, that the subtile Matter insinuating it self into the Blood, and by the Resistance it meets with in the Pores, not having Liberty to continue its Motion forward, it upon that Account strikes forcibly upon the Particles of Blood, and puts them into a tumultuous Motion ; from whence as it has the same Causes as Fermentation, (as will hereafter appear) and as we find diverse Fermentations to be attended with Heat, so it may

justly be concluded that this Heat does arise from such Motion.

What is Fermentation ?

Fermentation is an intestine Motion of the Heterogeneous Parts of any Body ; by which after a certain manner they are rarify'd and kindled.

How is Fermentation brought about ?

By this Means ; the subtile Matter as it passes through moist and fluid Bodies, meets with and strikes against some Particles that are rigid, and which by giving way are carried along with it ; some which cannot adapt themselves to the Passages, raise such a Confusion, that the subtile Matter in much greater Plenty thrusts it self into the Pores, and by that Means rarifies and lifts up such Bodies.

Illustrate this more fully ?

It is in the same manner, as that by which we see a great many Persons in one Room, every one as to himself at Rest, although confusedly moving about one another.

This is manifestly observable in many moist Bodies, or where sometimes they have Particles joined with some others which are always slowly moving about one another.

But what happens further ?

The more swiftly and confusedly such Particles move against one another, so much the more Roome do they require : This we find in Wine, which all Winter (as 'tis commonly expressed) is at Rest, or at least has its Particles in a much less Degree of Motion ; in the Spring, when the Sun's Warmth approaches nearer to us, and upon that Account the subtile Matter acquires a brisker Motion,

Motion, (for Wines do not want some rigid Particles, as those of Tarter) it bursts the Vessel in which it is contained, unless Vent be given it : and therefore every Rarefaction of a Liquor is not properly Fermentation, but that only which is from an intestine Principle, or a Heterogeneity of Parts and Dissimilitude of Pores, by reason of which the subtile Matter is compelled more vehemently to exert it self in procuring its Passage ; and consequently there can be no Fermentation in Water, or any other Liquor more Homogeneous, that's rarified by Fire, for such only boils up from an abundance of subtile Matter forced into it *ab extra*, and not from any internal Cause.

How is the innate Heat divided ?

Into implanted, and acquired ; the first is from the Origine of Life, but the latter that which draws the other out into Action.

Take Notice, that many divide the innate Heat into implanted and acquired, as if some Heat was from the first Beginning of Life infused into every particular Part, and which was to continue so through the whole Course of Life.

But from what has been said, it appears, that all Heat is from the Blood, and therefore that the acquired Heat is altogether unfixed and variable, especially, since the very Distinguishers themselves lay it down, and confess, that the innate Heat can do nothing of it self, but must be brought into Action by that which is acquired, and therefore that no Effects can be ascribed to the Agency of that alone.

From whence is continued the native Heat ?

From the subtile Matter, which is conveyed to the Heart from the Aliments by the Chyle and Blood : The Seat therefore of this native Heat must be the Heart.

Does not this Heat admit of any Encrease ?

It is under Growth even to Manhood, because still the nearer we arrive to that, by so much the more does it disengage it self from vapid Excrements, by more Exercise of the Body it obtains a clearer Respiration, and by a different Kind of Circulation, than what it has in the Fœtus, is it kindled.

Observe, That in the Fœtus the whole Mass of Blood does not flow through both the Ventricles of the Heart in the same Circulation, nor is it fermented in both, but takes a particular way. *Vid. Lower. de Corde.*

When is the first Appearance of this Heat ?

When the Soul is first infused into the Body, sufficiently organized for its Reception, which Time cannot precisely be determined, then it is that we may properly be said to Be ; but if it be understood with Relation to that Matter with which we are to be compounded, then it may be said to be prior to our Existence.

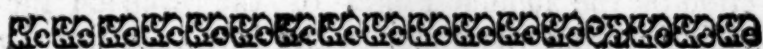
What is the Native Heat ?

It is the fat and oleagenous Part of our Body, which is the Subject of the innate Heat. The same also is called the Radical, and Primogenial Moisture.

What is Nature ?

The due Motion of Blood and Spirits, with a just Conformation of Parts, with Respect to Pores,

to the contractile Fibres, the larger Outlets, &c: which ought only to be such as expel from the Body whatever is hurtful, retain what is of Use, add what is wanting, and perform those Offices, which Nature requires.



Of the Humours.

C H A P. VIII.

W *HAT is a Humour ?*

A Humour is a *liquid, palpable Substance* in our Bodies, according to the Operation of Nature produced from our Meat and Drink.

Why is it said to be liquid ?

That the Faces and solid Parts might be excepted.

Why palpable ?

That the Spirits may be excluded, which also are a liquid Substance, but because of their great Volatility, impalpable.

Why produced in our Bodies ?

That Broths just taken in might be excepted.

Why according to the Operation of Nature ?

That we might be not understood to speak of those Humours which are Preternatural.

What is the Chyle ?

It is a liquid Mass, generated in the Stomach, from Meat and Drink.

How

How is the Chyle thrown out of the Stomach?

The Chyle is expelled the Stomach, partly by the Muscles contracting the *Abdomen*, partly by the Impulse of the Liver, and lastly in part by the peristaltick Motion, or the Vermicular Contraction of the annular Fibres of the Stomach successively from the upper to the lower Orifice, by which, the Stomach, in Conformity thereunto is successively streightned, and the Chyle thrust forward toward the *Pylorus* and Guts.

How is the Chyle made?

Before, when, and after the Food is taken in, the *Saliva* is continually swallowing, the Moisture of the *Oesophagus* is continually flowing down, the Juice of the Stomach and the Reliques of former Meals are mixed with what is swallowed, from whence by the Assistance of the Natural Heat, they are together diluted, macerated, rarefied, moved, attenuated, and dissolved, and rendered suitable to the Dimensions of those Passages through which they are afterwards to flow.

What does the Chyle do as soon as it gets out of the Stomach into the Intestines?

It is there further elaborated, as well from the Stomachical Ferment, which it brings along with it from thence, as from the Bileous and pancreateck Juices; which Liquors meeting in the *Duodenum*, and there mixing with the Chyle are fermented together; and together with the Chyle, whose Parts they further break and divide to a due Smallness, pass into the lacteal Vessels.

What are the lacteal Vessels?

They are a great Number of Vessels of a particular Kind, extremely fine, and unless turgid with

with Chyle, not to be discerned by the naked Eye, issuing out from all Parts of the small Guts, and running always through the Mesentery into one great and central Gland; in the larger Guts there are very few to be met with.

Observe; The Lacteals are said to be, *Vasa primi Generis*, or, *Vessels of a particular Kind*; with Respect to the Vessels which from them grow into much larger and fewer in Number, and which compose the *Cistern*, or large Gland; receiving into it Part of the *thoracick Dust*; which sort are called Vessels, *secundi Generis*, or *Vessels of the second Kind*.

How are the Lacteals inserted in the Guts?

Manifestly in the same manner, as the Ureters into the Bladder; that is, the lacteal Vessels do not directly open into the Cavity of the Intestines, but are obliquely inserted between their Coats, in the same manner as the Ureters into the Bladder; and for that very Reason will they not take up the Air which is blowed into the Guts, any more than will the Ureters from the Bladder.

What further becomes of the Chyle whilst it remains in the Guts?

In all the Guts, the *Cremor*, or more delicate Parts of the Chyle, leaving the grosser Parts in the middle, get from the Center towards the Sides, or inner Superficies, and there get into the Lacteals; and that it might the more commodiously be affected, it is thrust forward by the peristaltick Motion of the Intestines gently passing on from one End to the other, assisted by the Valves of the Intestines, and so brought to the Apertures of the Lacteals by them to be absorbed.

How

How does the Chyle get into the Lacteals ?

The Chyle does not get into the Lacteals by means of the peristaltick Motion, in that manner as some think it to be done; for that is made by the Contraction of the transverse Fibres of the Intestines, by which of Course these Vessels must be straightened.

But how then ?

By the Pressure of the *Abdomen* and Descent of the *Diaphragma*, the Sides of the Guts pressing upon that Chyle which they contain; some of it is imbibed by the spongy Coat of the Intestines, and thence taken into the Lacteals (at least if the adjacent Fibre is not at that Time in Contraction, for then nothing can enter, which may afterwards be contracted, for the peristaltick Motion is made successively by the Contraction of the Fibres) and by the peristaltick Motion following upon it, it is partly thrust forward and partly thrown back into the Intestines. Whence it is plain, that this Motion is rather to forward the Chyle already admitted, than to assist its Admission.

The richer Part of the Chyle being thus separated, what becomes of the grosser ?

Out of that the Fæces are made, which altho' they are in all the Guts, yet they are most made in the *Colon* and *Rectum*, (as in all things some Separation of the nobler Parts is made from that which is more ignoble) for before the Chyle can get thither, almost its better part is already drawn off, and then the Fæces are thrown out.

What

What happens to the Chyle after it is taken up by the Laeteals?

It is conveyed to the great Gland of the Mesentery, towards which all the Milk-Vessels run as to a Center, and it is carried through it by a great many Windings, on purpose perhaps to retard its Motion, for its whole Quantity goes on through the Thoracick Duct much faster than it does through the Laeteals, if (as some affirm) that that Duct is too small to receive as much as passes through the Sum of the Laeteals at once.

In what manner of Motion does the Chyle go on to the common Receptacle?

The Chyle runs through the Milk Vessels of the Mesentery, as also through its great Gland, even to the Cistern or common Receptacle, partly by the Motion which it is put into by the peristaltick Contractions of the Fibres of the Intestines, and partly it is thrust forward by the continual Accession of new Chyle. The Valves of the Laeteals much conducing to this Purpose, by hindering its Regurgitation, and by their innate Propension to Contraction, it is thrust on to the forementioned Receptacle.

Whereabout is placed the Cistern, or common Receptacle?

Between the Tendons of the *Diaphragm*, in that Place where they are incerted into the *Spina Dorsi*, and receives from all the lower Parts, and the Contents of the *Abdomen*, *Lymphatick Vessels*, that the Chyle by being diluted by what they bring, may the more easily pass through the Thoracick Duct.

What

What further happens to the Chyle in its Progress?

Because the Chyle might yet with so much Difficulty perform its Progress by the Cause already assign'd, as to be in Danger of Coagulation, before it gets into the internal Axillary Vein, into which the thoracick Duët opens, in the middle of its Journey it receives a new Agitation from the *Diaphragm*, which by its Tendons in every Inspiration shakes the common Receptacle.

Where is the Chyle carried out of the Thoracick Duët?

It is directly carried to the subclavian Vein, into which that Duët opens, sometimes with many, and at others with one only larger Passage, in order to mix it with the Blood which through that Vein is returning to the Heart. Into this Duët falls all the *Lympha* that is collected in the Thorax, (*Vid. Asel. and Wharton de Lat. Pecquet de Duët. Thorac. Lower in L. de Corde L. 5.*)

Is all the Chyle which is carried into the Veins, turned into Blood?

It is not all of it, and immediately changed into Blood, for the greatest part of it is of such a Nature as is too different from it to be so changed until it has had several Circulations.

How do you prove this?

Experience confirms it, for the Blood of a Man, or any other Creature, which is taken out of a Vein five or six Hours after eating, discovers Swimming upon it, a milky Substance not unlike that which is in the Thoracick Duët; which can be no other than Chyle, which for a certain

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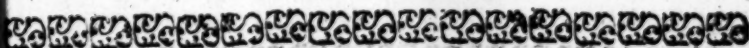
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Time after a Meal, floats upon the Blood, but afterwards changes and disappears.



C H A P. IX.

WHAT is an Excrementitious Humour? What of its own Nature is unfit to be changed into the Substance of that Body in which it is produced.

How is it divided?

Into Natural, and Preternatural.

What is Natural?

That which has not any Qualities hurtful to us.

What is Preternatural?

That belongs to Pathology, and shall be explained there.

How is Natural further divided?

Into Profitable, and Unprofitable.

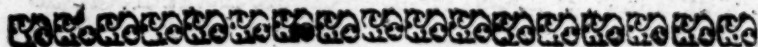
What is by Nature profitable?

That which is of some Use to the Body in which it is produced, as Milk, Seed, Blood, both Menstrual and that which is for Nourishment of a Foetus, yellow Bile, Melancholy, Serum, the Liquor in the Pericardium, the acid, or digestive Humour of the Stomach, Spittle, pancreatick Juice, Lympha, and Mucus of the Guts.

What is Unprofitable?

That which is of no Use, as Urine, Sweat, Tears, Snot, the Blood of Lying-in Women, the Water

Water discharged at the Birth, Hemorrhoidale Blood, and the Wax of the Ears.



C H A P. X.

Of Milk.

WHAT is Milk?

Milk is part of the Chyle, which by the Glands of the Breasts is separated into the Lacteal Tubes, for the Nourishment of the Child.

What are the Milk-Tubes?

They are Vessels proper to the Breasts, which arise out of a vast Number of Glands, and terminate with various Openings in the Nipple.

What is the Substance of Milk?

Chyle, not Blood.

How do you prove it?

A Purge taken by a Nurse, immediately mixes with the Milk, and purges the Child; yea, sometimes it will purge the Child only, and not the Nurse. Saffron, burnt Wine, and several other Things taken in, within the Compass of Half an Hour communicate both their Taste and Smell to the Milk. Moreover, after a large Draught, a Nurse perceives something with a Sense of Cold and Tension, to drain into her Breasts, which would not happen if the Substance of the Milk was from Blood.

Which

Which way does the Chyle get to the Breasts?

From the thoracick Duct there are several small Branches, which run off about the *Subclavials*, and are reflected towards the *Sternum* and Breasts.

How do you prove this?

Because in Bitches that give Suck these Milk-Tubes are branched out from the common Receptacle and the thoracick Duct, which *Bilsius* amongst his Secrets most ingeniously demonstrates.

Have not these same Passages been discerned in Men?

Not as yet; yet we cannot but think, that the Milk makes some of its way through the Arteries, and that the Chyle of which it is made, gets the Breasts, along with the Blood.

Have Women with Child with Milk?

Yes they have, especially at the End of their Going, not because any superfluous Menstrual Blood does regurgitate from the Womb through the Epigastrick Vessels to the Breasts; but because in such, the Fœtus growing big, and the Womb being wonderfully expanded and encreased, the Blood-Vessels of the lower Belly, are pressed upon, and by that Means the Blood regurgitates upwards; and the same by its Quantity and Warmth relaxes the Glands of the Breasts, and renders the lacteal Tubes more expanded than they were before.

What further happens to such Women with Respect to their Milk?

The Receptacle of the Chyle is more compressed in such, and the Chyle being by that more
D thrust

thrust forward, more forcibly opens its way to the Milk-Tubes.

Why does Milk flow more largely after Delivery?

Because after Delivery, the Womb does not soon recover its former Compass, and the Chyle before used to flow to the Womb for the Nourishment of the Fœtus, by the Constriction of the Passages flows upward; and how much the sucking of the Child does also conduce to draw the Chyle this way, no one will wonder, who considers by a Suction only of a Maid's Breasts, Milk may be drawn into them, as is manifest from Medical Histories.

When does the Milk cease?

When the Child ceases to suck, and the Milk-pipes, which by the Passage of Chyle to the Nipple were before open, coincide, then the Passages of the Glands become straiter, so that the same Quantity of Chyle cannot be strained through as before, and those Passages which by sucking lay more open before towards the Nipple, being now closed up, the Matter which is brought thither not being able to pass the Orifices of the Glands is taken up by the circulating Blood and carried back to the Heart.

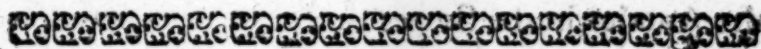
How further does the Milk cease to flow to the Breasts?

When the Nurse is again got with Child.

How comes that about?

The Chyle begins to flow back to the Fœtus in the Womb, now more soft and porous by the lesser Pressure it is under, and is drawn off from the Breasts until again towards the End of her Time
the

the Chyle Passages begin again to be pressed upon. The Mother then most conveniently weans her Child, or the Infant of his own accord abstains from Sucking, because it does not relish the Milk, altered by the Mixture of something disagreeable.



CHAP XI.

Of Seed.

W*hat ought to be premised before we treat of the Seed?*

It may be observed by what we see in other Creatures, that the Organs of Generation are in both Sexes different.

But is it not more proper to defer that to another Place?

Yes, till we come professedly to treat of Generation.

What then is the Seed?

It is a white Fluid, turgid with Spirit, prepared in the Stones and *Parastatae*, and further elaborated for the Purpose of Generation, in the *Vasa defferentia*, and Seed-Vessels.

Is the Seed made from the Chyle, or Blood, or of both?

The Seed is more noble than the Chyle.

Pray demonstrate that ?

I will ; The Chyle with the Blood out of the Trunk of the *Aorta* is carried directly by the Arteries to the Testicles, and thence by very small Glands discernable with a Microscope, into the tubulose Substance of the Testicles.

How does this appear ?

From the artful Division, and Distribution of the Arteries in the Stones.

What do you gather from hence ?

From their Rectitude, and the Contortion of their correspondent Veins, and the Multitude of their Valves, it follows that the Blood with the Chyle flows faster to the Testicles, than it returns ; and so by Means of the Contexture of the Arteries and the Glands every where dispersed ; the most noble Part of the Chyle is strained thro' the tubulous Substance of the Testicles, for Seed.

What is the tubulose Substance of the Testicles ?

It is nothing else but a Congeries of Spermatick Vessels, reflected into various Turnings and Windings, to which Position they are much confined by a common *Involucrum*, or Case, in which they are wrapped up ; for by taking off that, and soaking a Testicle in Water, those Vessels will unfold to the Length of above twenty Ells, thro' their Covering a great many Nerves run circularly, which by the Influx of Spirits pressing a great deal of Blood downwards, and successively straitening the Cavities of the Vessels, very much assist the Percolation of the Chyle ; and then the Blood, which is unfit to be converted into Seed, with that ferous Humour impregnated with a volatile Spirit, which the Chyle carried along with it to forward
its

its Passage, is returned back to the Heart through the Veins, and the Lymphaticks, which are annexed to the Blood-Vessels.

Some will have it that the Seed is from the Nervous Juice, or what comes from the Brain : Can you tell how this should be ?

No ; notwithstanding the great Number of Nerves that are found in the Stones ; nor does their Argument avail any thing, that a large Quantity of Blood does not weaken the the Body so much as a vevy little Seed ; nor that the Head akes after Coition ; nor that libidinous Persons are more subject to Defluxions from the Brain, and lastly from this, that they are within white, and not red.

How do you account for all these Things ?

I affirm in the first Place, that either that Fluid is either the nervous Juice, or the animal Spirits condensated, or else some other Humour ; but the very Nature of a Spirit which consists of Particles swiftly moving over one another, would prevent its Condensation into such a seminal Matter, nor can that nervous Juice be of any other kind, because it would then obstruct the invifible Pores of the Nerves.

What do you answer to the second ?

To that I answer, that to Appearance it is Fact, but 'tis chiefly owing to the vast Quantity of Spirits, which ought to enter into the Composition of the *Semen*, and without which the Chyle could never pass through those numberless minute Tubes which are in the Testicles, nor could it be changed into proliffick Seed, which must be made

by a brisk Action, and mutual Propulsion of Spirituous Particles against one another.

What say you to the Third, Fourth and Fifth ?

I say, That it may be easily understood, how the Third may be brought about by the great Loss only of Spirits ; for in Proportion to the Evacuation which is made by the Testicles, will the Nerves, at least those which are nearest, be also drained, and then by Reason of a more open Passage, will the Spirits more plentifully flow into those Parts than into others, and so of Course will the Brain it self be defrauded ; from whence it must happen that its Fibrils will vibrate with some Trouble and Uneasiness ; and also by its being rendred colder, Vapours will be the more condensed therein, and thrust forward so into the Spine.

What do you say to the Sixth ?

That all the Parts, even by the Confession of our Adversaries, and even the Testicles themselves are nourished with Chyle, when all in a manner appear white.

But to the Solution of the first Objection it may be replied, that the nervous Fibres are not obstructed, even by their own nutritious Juice how thick soever ; what say you to this ?

That such nutritious Juice does not proceed from the Brain, but is strained out of the Arteries, nor that it is thrown into the Latitudinal Pores, so much as the Longitudinal, and comes not so much in the way of the Spirits, and therefore it is that these Fibres encrease so much in Length.

What

What say you to those who affirm that the Seed is made from the Blood, and therefore that those who by immoderate Coition too much empty the Spermatick Vessels, and debilitate the Blood, lay such an open Passage to the Testicles (although to this Purpose the straiter Descent of the Arteries from the Aorta to the Testicles than to the Loins, conduces very much) that drawing it so much from the Loins, they fall into a Tabes Dorsalis, and with the Seed eject Blood; and that although they are weaker, yet that they are more temperate, and more prepared for Coition, although with less Efficacy, because with the Seed there is mixed Blood.

I say, that the Seed is the most elaborate and spirituous Part of the Chyle, impregnated with a great deal of Volatile Salt, by which all the *Phænomina* of these Matters, and every thing that concerns the Seed may be so explained, as to admit of no Refutation from any Arguments; for which it does more abound in the Blood than any other Humour (excepting the *Serum*) although it is also highly necessary for Recruit, Nutrition, Accretion, Generation of Blood and Spirits, &c. (although indeed almost every Humour, as it is said in another Place, may be said to be nutritious, as it may be suited to the Spizes and Figures of the Pores of any particular Part, and insinuate into and lodge in them).

Why does the Semen begin to flow at mature Age?

Because then the great Heat of the Testicular Glands, more opening the Pores of the Vessels

and Arteries, occasions a brisk Circulation of Blood through them, and the Nerves by Reason of a lesser Quantity of gross Juices, are much more expeditious in their Conveyance of Spirits to those Parts; for before that Age the Blood was more employed in the Increase of the Bulk of the Body, when the Heat and Pulse were too weak, to drive on, and force the Blood through such winding Passages, that were then not by much so enlarged.

What may be gathered from this?

That in old and decrepid Persons, by the Defect of the Natural Heat, and by the Dri-ness of the Spermatick Vessels, by the previous Heat shrunk up and destitute of a rich Blood, the Seed is altogether deficient.

Has the Seed any other Colour, in other Parts?

Yes, it is more of an Ash Colour in the Tubes of the Testicles, and of a whiter Colour in the Head of the *Epydidimus*.

Describe the Passage of the Seed, and the manner of its Exertion.

The Seed which is made in the *Testes* and *Parastatae*, is carried by the *Vasa deferentia* in a Pipe very small and winding, to the Seminal Vessels, in which it is kept in Store, there further to be elaborated, until by some Impulse of the Mind, or some Titulation of their Coats, it then more turgid with Spirits, and by the Fibres being more instated, is thrown out into the *Urethra* through the Eyes or little Holes of the Cock's Head: (as it is wont to be called) which is a Gland situated just in the Concourse of the Seminal Vessels. Sometimes also the
Seed

Seed is excerned, as also the Urine by this Means, because the Fibres which constringe their Passages and thereby prevent their getting out, are not enough inflated with Spirits, whereby they do not sufficiently close up those Passages; which is the same Case with those who make these Discharges upon any sudden Fright.

Which is the Office of the Seed, and whence is it that Eunuchs have any Titillation?

The Office of the Seed are the Testicles, and for that Reason Eunuchs have no Seed; but they feel some Titillation from a sluggish warmish Humour that distils out of the *Prostrata* through divers small Tubes into the *Urethra*; which Humour is not true Seed, for by those Glands being affected in a *Gonorrhoea*, it may a long Time, and without Loss of Strength be discharged, it serving only to cover and guard the *Urethra* from the Acrimony of the Urine.

Can Castrated Persons beget Children?

They may for two or three Embraces have Semen in the Seminal Vessels, and sometimes so far as to get a Woman with Child, as it is reported that Oxen have impregnated Cows; for to the Business of Generation, which is nothing but a Fecundation of a Female's Egg there is certainly not so much required an abundance of Seed, as that it should be Spirituous.

Does the Semen give any Strength to a Body?

Yes, inasmuch as the Genitale Spirits derived from it are conveyed into the Veins, and dispersed to all Parts; and also as it is already lodged in its proper Repositories, there are not such a Stock of Spirits vital, and animal, necessary to
flow

flow thereto, because they are already full, and upon that Account the Heart and Brain are not too much robbed of their Spirits for such Supplies.

Have not those who abstain from Venery a greater Stock of Seed than others?

No, for such as doe not indulge themselves in that Practice, but live chastly, have not so much Seed generated, because the Passages are much straiter, and the Substance of the Seed as were regurgitating, is dispersed about the Loins, and enters into the Nourishment of those Parts.

Have Women a proliffick Seed? and in what does it consist?

They have, if their Eggs may be reckoned such, of which their *Testes* are full, and which being expanded and impregnated by the Male-Seed fall out of those Cells in which they are contained, and thence are carried through the *Fallopian Tubes* into the Cavity of the Womb.

Is that Humour which Women emit in Time of Coition true Seed?

It is not, for that Matter proceeds from the *Clytoris*, and Parts about the Orrifice of the *Vulva*, and not out of the Womb. This appears from those who are with Child, in whom the Womb is close shut up, and fortified with a yellowish *Gluten*.

Many Women also conceive, who do not emit any such Matter (by their own Confession.) That Humour also has not the Consistence of Seed, nor is it Spirituous; for Whores who prostitute themselves frequently in one Day, are not weakened by the Discharge of it, nor has
it

it the due Elaboration of Seed, for it is not generated in those Organs, but only in the Glands.

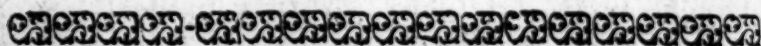
What ways do Women emit this Humour?

From the Passages to the Womb, or out of certain Ducts, which from the *Prostata* and uterine Glands by several Orrifices open into the *Vagina*, as it is drawn away in Coition by a Titillation, and a consequent Constriction of the Glands of the *Uterus*.

Is then this Humour of any Use to Women?

This Humour is of Use as it continually keeps slippery and moist the *Vagina*; it may also happen to facilitate the Elevation of the Semenal Spirits from the *Vagina*, through the Womb quite up to the Ovaries, in order to the Impregnation of an Egg.

C H A P.



C H A P. XII.

Of the Menstrual Blood.

WHAT is the Menstrual Blood?
That which, at no Certainty, monthly flows from the Womb.

Why say you at no Certainty?

Because this Discharge happens without any previous Affections of the Mind, at different Times, as the Diet more or less abounds with volatile Salt, and according to different Temperaments, flows in some sooner, and in others later; the hottest flow soonest, but most sparingly, and continue it not so long as in colder Constitutions.

By what Passages do the Menses flow, and what is the Womb?

They flow through the *Uterus*, as through an Organ for that purpose contrived (as indeed all the Parts are framed by the Author of Nature for the Performance of their respective Offices) by Means of a peculiar Position and Configuration of the Uterine Arteries, which by not being inscuated into the Veins, cannot refund the contained Blood to the Heart. *Whence the Womb is a certain membranaceous Part in the Lower-Belly, placed between the right Gut and the Bladder, and extending it self to the PUDENDA.* Between its Coats are many Blood Vessels, arising from the

the Hypogastricks, and opening into the inward Cavity of the *Vagina*, which monthly by an intestine Motion of the Blood, are for the most part laid open to discharge the *Menses*.

What is the Cause of the Menses? Is it any Ferment in the Womb? If so, how is that generated?

The Cause of the *Menses* is a certain Ferment in the Womb, which almost monthly is stirred up into Action, and whose Generation I take to be in the Heart (where all the Humours to be discerned by each Part, are by their inordinate Motions adapted and brought to Perfection) and thence to be derived to the *Ovarium*, which is situated on the Sides of the Womb, and tyed to the *Peritoneum*; in it are included many Vesicles, representing the Mould of a humane Body, delineated in a neat and elegant manner, and the Ducts and small Canals, as they are in a Body of an Animal, are exhibited, and slightly tyed together by extremely slender Threads, which are plentifully stored with a fine and subtile Matter, derived from the Sparmatick Arteries, almost every where running over them, by the continual Contractions of the Heart; which go a great way toward the Formation of the Egg, and to the Production and Accretion of what arises out of it. The Particles of this Matter here discerned, by the Laws of Circulation do not make any Stop, but are taken up either by the Lymphatick, or Sparmatick Vessels, that are grafted into the Membranes of these Vesicles; which that it is usually done almost monthly, proceeds from the Smallness of these Vesicles, and the Streightness of these Passages, whereby

so much of this Humour cannot pass as in other Organs, or that it is continually brought and carried back to the Heart by the Veins or Lymphaticks, until a sufficient Quantity is collected to put again the Blood into a new Ferment.

Do not some assign the Abounding of Blood to be the Cause of Menstruation ?

Some do alledge that the Abounding of Blood at some certain Times is the Cause of it ; the Warmth and Stretchableness of the *Vagina* and *Uterus* concurring therewith : In those Women where it most abounds, it is most plentifully discharged ; thus, in Country Women, who by hard Labour waste a great deal of Blood, they flow but little or not at all. In those who have lost much by Blood-letting, they flow also but very little.

In some Persons there is Blood monthly discharged by the Nose, Lungs, Gums, yea by the very Pores of the Skin, which I my self have seen in the Hospital at *Leyden*, when I studied Physick there under *De la Boe Silvius*, now above forty Years since. Such Discharges denote a distempered State, and that it proceeds from some ill Conformation of the Womb : They, in whom the *Menses* thus flow, are liable to various Diseases, as Pains of the Head, Loss of Appetite, Fevers, &c.

Does not the Ferment in the Womb seem a more probable Cause ?

With better Reason is there assigned in the Womb a Ferment, gradually reposed there from the Blood, by which, acquiring much Heat, it rarifies and grows fervid, and at length, by the Assistance

Assistance of the Substance of the Womb it determines the Blood to the Orrifices of the Vessels, and an Influx of Spirits into the circular Fibres of the *Uterus*, by which it is successively contracted, and also by stimulating the Fibres of the Arteries and Nerves, it conduces much to this Purpose, and rendring the Womb turgid and widened, the thinner Part of the Blood flows out along with the Ferment, which *Stimulus* is most admirably assisted by a Tincture of *Cantharides*, which gives a greater Motion to the Spirits, and wonderfully helps forward the Menstrual Evacuations, as I my self have a hundred times observed in my own Practice.

This Tincture renders the uterine Ferment much more efficacious, and as it irritates the *Uterus* it self, helps forward its Menstruation, for it abounds much with a volatile Salt.

This is demonstrable in bilious Women (who have a great deal more of a volatile Salt in their Constitutions than they who are melancholy) because they discharge their *Menses* in much shorter Time than others.

At what Age do the Menses begin to flow?

From the fourteenth Year, sooner or later, because then the Body is arrived almost to its due Bulk, and then the Blood begins to redundate, and overabound both in the Womb and other Parts; hence the Breasts gradually swell up; the Neck of the Womb grows less corrugated, becomes thinner, and does not so much press upon its Arteries; a greater Warmth also actuates the Blood, dilates, and makes straiter the Arteries, and at last breaks through them.

At

At what Year, and for what Causes does the Menstrual Blood generally cease to flow?

Ordinarily from the fiftieth Year, partly from the Decay of Blood and Heat, and partly from the Streightness and Dryness of the Passages. They sooner give over in such as are naturally hot than in colder Constitutions, because they sooner grow old, and the Activity of this Ferment is sooner abated.

By what Outlets is the Menstrual Blood discharged?

From the *Vagina*, as well as from the Bottom of the *Uterus*, for those with Child have sometimes also the *Menses*, in whom, should it putrefy by Stagnation, it would destroy the Nourishment of the *Fœtus*, and occasion Abortion.

How is it known when the Menses are about to flow?

By Pain, a Stretching and Heat about the Back and *Hypogastrium*; for the Blood at the first Onset breaks through the Arteries.

Are the Menses from the Arterial or Venous Blood?

From the Arterial, because the Arteries only bring Blood to the Womb.

Do they flow in those who are with Child?

Very seldom, because the Activity of the Ferment is extinguished from the Chyle, which then abounds: For the Chyle by Reason of its oleaginous Parts, does very much blunt the Point of that Ferment that raises the Blood into an Effervescence; partly as it is conveyed to the *Fœtus* for Nourishment, and also by the remaining Ferment, is not sufficient of it self to raise

raise the Blood into such a tumultuous Motion as is necessary to the Menstrual Discharges.

By what way does it flow in such who are with Child?

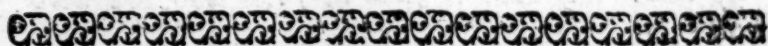
It distils into that Part of the *Uterus* which is free from the *Placenta*, the Mass of Blood forming to it self more suitable Passages, for the Conveyance of the Chyle along with it through the hypogastrick Vessels.

Do they who give suck discharge the Menses?

Seldom or never; partly for the Reasons already given, and partly because the Uterine Ferment by the Sucking of the Child, is diverted toward the Breasts, which at that Time is subject to a *Diarrhæa*, or such like Illness.

Does the Menstrual Blood differ from the Maternal, in those who are with Child?

It does not differ, nor does it nourish the *Fœtus*, or *Secundines*, but only dilates the spongy Substance of the *Uterus*, that it might be softer and more yielding to the growing *Fœtus*.



C H A P. XIII.

Of the Saliva:

WHAT is the Saliva?
A serous Humour, ouzing out of the Salival Ducts.

What are those Salival Ducts?

They are Vessels of a peculiar Kind; the most considerable are four in Number: Two upper Ones, which have their Rise from the *Parotides*, and running along to the Cheeks under the Skin, open themselves into the Mouth, by a visible Orifice: The lower are also two, which pass out, from diverse Branches of the Maxillary Glands, the Greater of which, before it reaches the common Trunk, runs under the digastrick maxillary Muscle. The Inferiour terminate, on both Sides the Point of the Tongue, near the Incisors of the lower Jaw, between certain *Papillæ* there situated. To these Glands the Substance of the *Saliva* is brought by the Arteries. It further ouzes out almost from all Parts of the Mouth, as from the Sublingual Glands, and the Tonfils; the latter of which have two white Vesicles placed near them, which receive the *Serum* from them, and pour it out into the Mouth; each of them have also not only a large common Opening into the Mouth, but also several other smaller Glands, which

which have likewise every one proportionable Orrifices.

What is the Use of the Saliva?

By keeping moist the Lips, Tongue, Palate, Gullet, and Wind-Pipe, it quenches Thirst, assists Swallowing the Food, and makes a Beginning of Chylification even in the Mouth, for it is of the Nature of the acid Juice of the Stomach, that is, it has Saline-acid Particles incorporated with it, and for that Reason a Piece of Bread chewed, and exposed to the Sun grows milky, and the Crumbs of Bread or Meat, which stick in the Teeth turn white, though more slowly, whence *Saliva* alone is not sufficient to make Chyle.

From the Food in Chewing it draws out a sapid Tincture, and conveys it to the Organ of Taste, whence without it there would be no Relish of Food.

Does not the Saliva which is swallowed get back again to the Heart?

Yes, continually with the Chyle through the Lacteals.

In what Instances does the Saliva flow most largely?

When we smell any thing that is grateful, or see, or are greedily desirous of any thing, the *Saliva* then plentifully distills into the Mouth, because the Nerves of the *Par Vagum* not only detach Branches to the Salival Glands and Passages, but some also to the olfactory and optick Nerves, from whence a stronger Influx being made into these, that also is increased into the *Par Vagum*, by which further Contraction of the Fibres, the

Salival Ducts are squeezed, and discharged of their Contents.

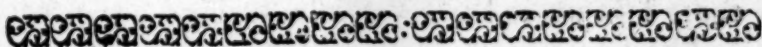
Whence does it happen that a Leaden Bullet rolled about in the Mouth does asswage Thirst?

Because it presses upon the Ducts, and presses out the Saliva which is in them.

Why is there a greater Flux of Spittle upon Vomiting?

It then more plentifully flows, because the Stomach is affected by Consent of the maxillary Glands, by a Continuation of some Branches of the sixth Pair of the Mouth and Jaws, which therefore are sympathically contracted, and so squeeze out the Juices. After the same manner is Vomiting provoked by stimulating the upper Part of the Gullet.

C H A P.



C H A P. XIV.

Of the Pancreatick Juice.

WHAT is the Pancreatick Juice?

It is a ferous Humour, which flows out of the *Pancreas*, or *Duodenum*.

What is the Pancreas and its Duct?

It is a Substance composed of a great many Glands, made from several Branches of Vessels, and Nerves wrapped up in a common Membrane, situated under the Stomach, one Extremity extending as far as the Spleen, and the other reaching; and being inserted into the *Duodenum*, does some way descend along with it.

The *Pancreas* has an excretory Duct proper to it self, consisting of diverse Branches, every one of which have annexed to them a Gland. That is commonly called the *Ductus Pancreaticus*, which is inserted obliquely into the *Duodenum*, or upper Part of the *Fujunum*, after the same manner as the Gaul Passage, covered with a sort of a Tubercle, over which the Chyle washes, so as not to hinder the Excretion either of the Bilious or Pancreatick Juices.

How is the Pancreatick Juice separated from the Blood, and whither does it go?

The Blood running through the Arteries, and passing into the Pancreatick Glands, secerns thro'

their Pores that Juice which is so called, and there laid up in little Duets.

The Pancreatick Juice drains out of these little Duets into the great One, and thence into the Intestines, but in a very small Quantity, as appears from the Duets being never full, upon a Ligature made in a live Dog.

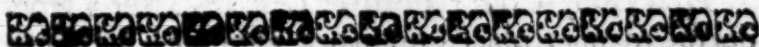
What Taste has the Pancreatick Juice ?

It is subacid, from its Acid-saline Particles diluted with *Serum*, which when they mix with the Bile, struggle with it, and raise a Fermentation.

Of what Use is this Juice ?

As a new Ferment it further breaks the Chyle; and moreover softens the Bile, so as to hinder its offending the Coats of the Guts. *Leg. Regn. de Graaf. de Suc. Pancr.*

C H A P.



C H A P. XV.

Of Natural Melancholly.

WHAT is Natural Melancholly?

It is an Earthy Humour, that gives no Nourishment.

Is there any such Humour to be found in the Body?

It is no where to be found ready seperated, unless the *Renes Succenturiata* are assigned for its Repository.

How do those Glands appear in Infants?

Greater than in grown Persons.

What is the Opinion of some concerning the Renes Succenturiata.

Some will have it, that black Bile is lodged in them, (which is false) for it is plainly a Preternatural Humour, nor is no where to be found in an healthful Body, or consistent with the Animal Oeconomy, and therefore can no place be assigned for its Seat.

What doe others say concerning its Seat?

That from the Blood, an Accid and black Humour is produced in the Spleen. Melancholly is not in the Spleen, or does it immediately pass from thence to the Stomach.

What is the Substance of the Spleen?

It is composed of innumerable Vesicles, or Membranous Cells.

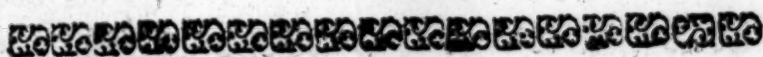
What may they be likened to?

To a Hony-Comb, or little Lettices after a wonderful manner placed upon one another; A Branch of the Celiac Artery, after a peculiar Contexture is interwoven with them, which as in the Glands, continually by an excretory Vessel deposits a Humour into the Cavities of these Vesicles.

The famous *Sylvius* alledges, that the Blood seperated in the Spleen is their more than perfected, because

1. The Blood seperated in the Spleen, does not always continue there, but is still pushed forward by the circulatory Motion.
2. By the Influx of Spirits into the Nervous Fibres composing every Cell, the thicker and more earthy Matter is thrown out by the Splenick Vein into the *Porta* and *Vena Cava*.
3. So that it might be further elaborated, the thinner and more watery Part is forced through the Lymphaticks into the common Receptacle of the Chyle, in order to Facilitate its Ascent up the Thoracick Duct.

C H A P.



CH A P. XVI.

Of the Serum of the Blood.

W H A T is the Serum?

It is the more watery part of the Blood.

Why is it said to be the more watery?

Because when it is seperated, it has other Particles mixed along with it, as Saline, Accid, and others.

How is it, according to its Differences, differently named?

As it is changed, It is either called, Lymph, Spittle, the Water in the Pericardium, and Stomachick Juice.

What is it called while mixed with the Blood?

The Serum of the Blood.

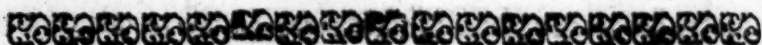
What Use has it?

It is the Vehicle of Blood and other Humours to the Parts that are to be nourished; and as it first enters the Pores, it relaxes and widens them.

In what Proportion is it mixed with the Blood?

In great plenty, according to the Quantity of Fluids that is daily taken in.

CH A P.



C H A P. XVII.

Of the Humour of the Pericardium:

W H A T is that Humour in the Pericardium?
A Serous Humour.

Of what is it composed?

Of Serum, sometimes having in it some small Particles of Blood which it brings along with it, and therefore it is often like that water which has had Meat washed in it.

From whence does this Humour come?

Some say it is a Vapor which exhales from the Heart, and is condensed by the Coldness of the Pericardium.

What is the Use of it?

To Facillitate the Motion of the Heart, as all things are wont to move more easily in Fluids, and to prevent the Beating of the Heart from hurting the Neighbouring Parts.

Of what other Use is it.

To moisten and cool the Heart, least by its continual Motion it should grow too Hot and Dry.

Observe, That as this Humour is supplied, in the same Proportion does it wast by Evaporation.

C H A P.

C H A P. XVIII.

Of the Lympha.

WHAT is the Lympha.

It is a Serous Humour, altogether lymphed, and included in the Lymphatick Vessels.

How are those Vessels described?

They are extreemly thin and transparent Vessels, they arise almost out of all the Parts of the Body, and their absorb their Contents.

What is peculiarly observable in the Lymphaticks?

That they may the more safely be propagated in their Passages, they are here and there annexed to the Veins, along which they creep like Ivy, but not that they take up any Serum from thence, of which there is no great plenty in the Venous Blood.

What may be learned from the Constitution of the Valves, and from Ligatures, and the Inflation of those Vessels?

That the Lymphaticks below the Diaphragm for the most part end at, and discharge their Contents into the common Receptacle of the Chyle.

What further?

That the other Lymphaticks above the Diaphragm are inserted at the Concourse of the Jugular with the upper part of the axillary Vein, and into the Thoracick Duct, and Pericardium.

And

And what do they there ?

There they discharge Water, for there their Valves are most compleat.

What further ?

And here they evade the naked Eye by reason of their wonderful smallness.

When do those Vessels appear biggest ?

When they are tinged with a Light red or yellow; and after a Person is Dead, when by a slower Motion of their Contents they become more turgid.

Does the Lympha differ, from the Nervous Juice ?

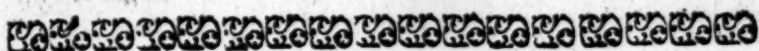
Yes, it does differ from that.

What is the Lympha, and how generated ?

It is the thinnest part that is strained from the *Serum* of the Blood, which not by any Force, but by a kind of Sweat gets out into the Lymphaticks, which by their having so many Valves, are sufficient to continue its Motion forward.

To what purpose is the Lympha useful ?

As was said before, it dilutes the Chyle in the great Receptacle, that it might the more easily ascend the Thoracick Duct; and in the Jugular Vein, it renders the Venous Blood, defrauded of its *Serum*, thinner, that it might the more easily rarifie in the Heart; and in the *Pericardium* it Recruits its Liquor.



C H A P. XIX.

Of the Mucus of the Guts.

WHAT is the Mucus of the Guts?

It is a viscid Glutenous matter covering the inner Coat of the Intestines.

Whence does that proceed?

It is brought by the Arteries to the Glandulous Coat of the Guts, and by that it is seperated from the Blood, and strained into the Cavity of the Intestines.

What Office does this Mucus serve for?

It covers and defends the inner Coat against the Acrimomy and Asperity of the Bile and Food; and also assists in Chylification.

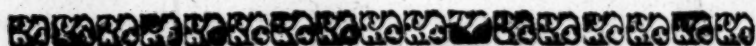
What is observable of this Mucus upon violent Purges?

That in such Cases it is dissolved and wore away not without considerable Detriment.

What then?

Sharpe Pains and Grypings ensue; and at length Dysenteries, Bloody Flux, and Excrements stain'd with Blood.

C H A P.



C H A P. XX.

Of Sweat.

WHAT is Sweat ?

It is a Serous Humour issuing out of the Sudoriferous Vessels, or Pores of the Skin, in the Form of Water.

Give a Description of the Sudoriferous Tubes ?

They are small Tubes opening out of the Skin, as far as the Cuticle, each arising out of a small Gland, through which the Serum which is the substance of the Sweat, is strained, as may be demonstrated by a Microscope.

How comes the Sweat to be Salt ?

From the Saline Particles which are mixed with the Serum.

What is the Cause of Sweat ?

Heat, either from the Sun, from Fire, Exercise, Cloaths, &c. by which the Blood is put into Motion, and more briskly circulated all over the Body, the Appertures of the Arteries about the Skin are more opened, and the more yielding Parts of the Serum, and those which have the least Cohesion, flow through them, and pass the cutaneous Pores; but because their Motion just at Entrance is but slow, they then cohere together, and condense into little Drops.

Doe not a plenty of Serum, and a Dilatation of the Pores together very much promote Sweat ?

Yes

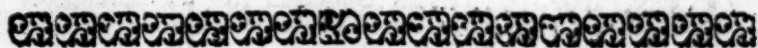
Yes they do, but least of all the Wideners of the Pores, for that most concurs in Perspiration which is insensible.

Too great a Constriction of the Pores obstructs this Separation, but when it is once made, it is thereby the larger; hence Sweat procured by Exercise in cold Weather, is much greater than in Summer-Time.

Why does not the Blood also pass out with the Sweat?

The Blood ordinarily does not pass out with Sweat, because it is too glutinous, although indeed sometimes, some of the finer Particles of Blood do get out with it, as the Sweat is seen to be tinged with it which is discharg'd from the Arm-Pits.

CHAP.



C H A P. XXI.

Of Urine.

WHAT is the Urine?

It is a serous Humour separated in the Reins.

Whence does it proceed?

From the Blood which is brought to the Kidnies by the Emulgent Arteries: This Fluid is separated from the Blood as superfluous, and that continually, as the Blood is continually brought to the Kidnies for their Nourishment.

How is the Urine separated from the Blood in the Kidnies?

After the following manner. The Blood together with the Serum, is carried into the exterior glandulous Substance of the Kidnies by the Emulgent Arteries; which being divided into various Branches by the Impulse of the Blood into them, diverse of its finer Particles are separated into several small Tubes; which afterwards growing larger than what they usually are in the Substance of the Kidnies, and terminating in eight or nine Caruncles made up of them, they pass into the Pelvis, and thence into the Urethra and Bladder.

What becomes of the rest of the Serum?

The rest which comes to the Kidnies and is unfit

fit for Transcription, returns by the emulgent Veins to the *Vena cava*, and there, as before, dilutes the Blood.

How is this effected?

In order to a Separation of the *Serum*, the Blood is retarded in its Course, and therefore the Tubes in the Kidnies are formed from a lesser Diameter as they go forward, into a larger. *Vid. Malp. de Renib.*

Does the Serum only go to making the Urine?

The Bile tinges it with a yellowish and dusky Colour.

What further?

It also takes along with it Particles, sulphurous, saline, fixed, earthy, tartarous, &c. from the Parts it passes through.

Are there no other peculiar ways by which the Drinkables may be sooner secerned?

At such times they say that they do not go the Way of the Arteries, but by a much nearer Passage from the Stomach to the Bladder; the Reasons they alledge, have indeed a Show of Probability, but they certainly are not conclusive, for Anatomists have not hitherto discovered any such Passages.

When, and what Ways is the Urine detached?

That we so soon piss upon drinking Beer, or any other Liquor, as *Tunbridge*, or *Spaw Waters*, may easily be understood without supposing any such ways. For large Draughts immediately increase the Circulation to the Kidnies, partly by suddenly passing from the Stomach into the Guts and thence into the Milk-Vessels, it crowds forward the Chyle, that was before in them as well as that

in the Thoracick Duët, and by that Means encreases the Quantity of *Serum* in the Blood.

Go on.

And because a large Draught, by its distending the Stomach and Guts, presses upon the Blood Vessels of all the *Viscera*, or *Abdomen*, and so occasions the *Serum* to abound in all other Vessels as well as the Blood. So in order to its freer Passage, and the more commodiously to disengage it self from any refluxent Blood, the Mass is forced to detach its *Serum*, which by its Thinness easily falls through the Kidnies. That we piss therefore immediately upon Drinking is not that we immediately discharge what we have just taken in, but that what was before in the Vessels is thereby thrust forward.

Have you any other Reasons for this?

Yes, for I affirm that what we drink flows very fast through its Passages, for the Blood does in all Probability, in a healthful Body, perform its whole Circulation in a Quarter of an Hour, so that it is no Wonder that we urine so soon after Drinking.

What think you of the Colour and Smell of some Things in the Urine, as of Asparagus and Madder?

They do not prove that there are any particular Passages, for those things are opening. See *Charlton de Lethiasi*; and read the Anatomy of *Bidloo*, our Country-Man, and of *Cowper a Britton*. But least it be thought that I say all this upon my bear Authority, and so altogether reject any such particular Passages, and that it is yet very likely that there are such, I hope by the Industry of our present

present Anatomists, they may, some time or other be demonstrated. What I have said, may prove thus far, that they have not hitherto been discovered; as in treating about the Milk, I have shewn how it might, in Probability, be carried along with the Blood.

How long is the Urine detained in the Bladder?

Till by its Weight or Acrimony it sollicit for Ejection.

How is it excerned?

By the Contraction of the abdominal Muscles and of the Fibres of the Bladder, when upon their Irritation, a greater Quantity of Spirits flow into them.

How is it that the Urine does not flow out when we are asleep, or think nothing about it?

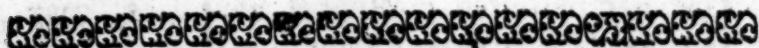
There is a remarkable Annular Muscle, or Sphincter that closes the Neck of the Bladder, whence in order to piss, we are obliged to contract the *Abdomen* so as to overcome the Action of the Sphincter, which is always in a State of Contraction.

How is it that the Urine does not regurgitate from the Bladder back into the Ureters?

It cannot, because the Ureters are obliquely inserted into the Coats of the Bladder, so that when it presses upon them, it shuts up their Apertures.

Why do we make more Urine in Winter than Summer?

Because the insensible Perspiration of the Pores is then obstructed, and the *Serum* is diverted to the lower Parts; so by Immersion into cold Water, it makes us do the same.



C H A P. XXII.

Of the Tears.

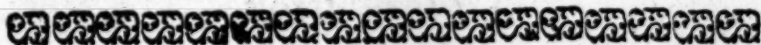
WHAT are the Tears ?

They are an excrementitious ferous Liquor, ouzing from the Glands of the Eyes upon some Passions of the Mind, as Pain, Sadness, Pity, sudden Joy, &c. The animal Spirits driving on, and hastening the Blood, makes it there depose a larger Quantity of its *Serum*. Concerning their Nature, Origin, and Excretion, consult *Wharton de Glandul. Bartholin, Willis, &c.*

What is the Mucus of the Nostrils ?

It is a tough, viscid Humour, adhering to the Inside of the Nose.

C H A P.



C H A P. . XXIII.

Of the Blood flowing in Child-Bed.

WHAT is that Blood which flows in Child-Bed ?

It is that which is discharged by a Woman at that Time.

What is to be understood by Child-Bed ?

That Space of Time, between the Birth and the End of a Woman's Cleansing.

How long are our Women in those Purgations ?

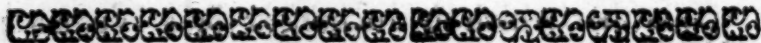
In Britain they are twelve, ten, eight, or four Days Time.

What is the constituent Matter of the Blood at such Times discharged, and whence does it proceed ?

This Blood is that which is used to fill up the spongy Parts of the Womb in order to its Growth, in the Time of Bearing ; and which partly breaks through into the Cavity of the Womb, and in Part returns by the Veins, and so making a new *Plethora*, is thrown out as the *Menses* ; or is that which flows out of the small Arteries, which before brought the Chyle to the *Placenta* for the Nourishment of the *Fœtus*, and are not yet altogether closed up.

Observation.

If the Blood continues long in the Cavity of the Womb ; it grows into a hard Substance, or such Substances may possibly proceed from the Blood, which previously flows from the *Secundines*, and lodges in the *Uterus*.



C H A P. XXIV.

Of the Water discharged in Labour.

WHAT is the Water discharged in Time of Travel?

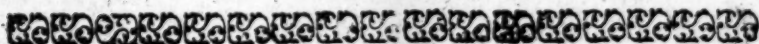
It is that which then bursts out of the Womb.
What is the Substance of this Water?

The Urine of the Fœtus, Sweat, and the superfluous Chyle which is contained in the *Amnion*.

When, and by what Means, and to what Purpose does it flow?

It breaks out when the Membranes are first broke by the Struggling of the Fœtus, and that sometimes long before the Birth. But it is better not so to be discharged, because by lubricating the Passages, it hastens on the Birth,

C H A P.



C H A P. XXV.

Of the Hemorrhoidale Blood.

WHAT is the Hemorrhoidale Blood?

It is a Redundance of Blood which breaks out from the Hemorrhoidale Arteries.

Does it not answer the End of the Menſes in Men, and does it not come from the Spleen, and is Venous?

It answers the ſame End in Men as the *Menſes* in Women; but it does not proceed from the Spleen, as the Ancients affirmed, nor is it Venous Blood, but from the Arteries.

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THE
GROUNDS
OF
PHYSICK.

PHYSIOLOGY.

Part the Second.

CHAP. I.

Of the Spirits in general, and their Sorts.



H A T are the Spirits ?

They are the most fine
and subtile Particles in the
Body.

Of what are they made ?

From the finest Parts of
the Blood, that is such
as are, as it were, the most
Sulphureous, and Fiery,
which

which are produced from all such Parts of the Chyle, of what Figure, Magnitude, or Solidity whatsoever, that can be sufficiently divided and broken.

Is not the Existence of Spirits in a Human Body demonstrated by the Ligature of a Nerve?

A Nerve in any particular Part being either tied or cut asunder, so that the Spirits cannot flow any more to that Part, it immediately looses both Motion and Sense.

How do you divide the Spirits?

I know of no other than such as are called Animal, and which do the Offices of the Oeconomy.

How are they distinguished?

Into *Sensorii* and *Motorii*, as they flow into the Nerves, (that which flows into the *Medulla*, serving for Motion, and into the Membraneous Part, for Sense.) The Spirits are called Vital, as they perform the Vital Actions, and Natural as they perform the Natural Offices, and so of the rest, without any specifick difference.

And therefore do you say that the Animal are the only Spirits?

Yes, indeed, because their very Essence consists in the rapid Motion of some Subtile Particles separated from the Blood; so that the Vital Spirits are not truly Spirit, but the finest Part of the Blood, and therefore they cannot essentially be distinguished from it; after the same manner that Wine, when its Spirit is taken from it, ceases any longer to be call'd Wine: But as it has Spirits in it, it is properly said to be Spirituous, and so the Blood from its Vital Spirit may be termed Spirituous, and Living: This further being observed, that the
Vital

Vital Actions from whence the Vital Spirits are denominated, may better be comprehended under the Natural; and therefore the threefold Division of the Spirits is not just.

How are the Animal Spirits made?

They are generated in the Brain by a Separation from the Blood; which being charged with a Spirituous Matter, is thrown out from the left Ventricles of the Heart into the Branches of the Vertebral carotide Arteries, and runs through them; whence it enters into the Cortical Substance of the Brain and *Cerebellum*; which is of an Ash-Colour and laxer than the rest, compounded of several Veins and Arteries, from the Branches of the Carotids, variously folded and twisted with one another.

The Blood, after this manner pressed forward, the hinder Part always driving on that which is foremost, passes through the windings of the Arteries into the Whiter Substance of the Brain and *Cerebellum*, where the most subtile Parts of it, by a peculiar Conformation, are separated, the Passages being there on purpose straitened.

The rest which is not adapted to those Passages, is brought back by the Veins, and some perhaps by the Lymphatick Vessels, ingrafted into the said Arteries, and running into the Cervical and Carotid Veins.

How many ways do these Spirits flow from the Brain?

Four ways; First of all, at the command of the Mind, for I take it that the Author of Nature has so order'd it, between the Mind and Spirits that they shall always be under its Influences, and
flow

flow at its Command, tho' not that it protrudes them in their Motions, because that cannot be done by a Spiritual Substance.

How Secondly?

Secondly, the Spirits are carried out from the Blood, which by the Contraction of the Heart is thrown into the Brain and *Cerebellum*; fresh Spirits being continually seperating from it, those which were before in the Brain are pressed forward in their Tracts, both by the Systole of the Brain, and the continual Protrusion of fresh Spirits *à tergo*; and thus they get into the Cavities of the Nerves, and from their Motion therein, which is but slow, that equal and tonick Motion of all the Muscles is preserved. Hence it appears why in every Pulse the whole Body shakes, as it comes from the continual Protrusion of Blood through the Arteries, so also it is evident how it comes about that where one Arm is taken off the other grows much stronger, and why when one Muscle is Paralytick its Antagonist will be Convulsed; to wit, because those Parts are thereby more inflated with Spirits.

How Thirdly?

Thirdly; The Animal Spirits flow from the Brain upon the Irritation of any Part, for when by the Motion of the Nervous Fibres the Pores of the Brain are opened, the Spirits immediately flow to the irritated Part.

And so it happens in Respiration, in the Motion of the Heart, in the Peristaltick Motion of the Guts, &c. in all which Cases there is a kind of Natural Titillation.

They

They furthermore flow when any irritated Member is preternaturally contracted.

But by means of such Appertures in the Brain, this Efflux of Spirits is not only into the irritated Part, but also into the Nerves adjacent; and from hence the Cause of Sympathies is to be had, which is observable between several Parts, as between the Kidneys and Stomach, so that when they are irritated, the other is provoked to Vomit.

So also between the Colon and Stomach, the Irritation of the former having the same Effect, &c.

How then in the Fourth Place?

Fourthly; The Spirits variously flow out, as Swifter, Slower, continued or interrupted, according to the different Affections of the Mind: As in Sorrow, Gladness, Anger, Fear, &c. It is also observable in Life, in many Persons at least, that without any particular notice of the Mind, the Spirits do so move, that one feels himself sensibly disposed to Joy or Gladness, &c. but that the Animal Spirits do so move upon any Passions of the Mind, can be accounted for no otherwise, but that the Author of Nature has established it as a Law between the Mind and the Animal Spirits, that when the former is affected the other shall be under its Directions.

Do not those Spirits which flow out of the Cerebellum serve to such Actions as are Involuntary?

Yes, as they flow through the *Par Vagum*. And hence we have the Reason why in an Apoplexy the Pulse and Respiration, which are continued by that Influx, do not altogether cease.

Is

Is not this Motion of the Spirits ill compared to the Explosion of Gun-Powder?

Yes, Truly; the Spirits in a Natural State, are not like Gun-Powder, kindled in the Brain, or exploded from thence; for if so, the Motion of the Body would not be under the Command of the Mind.

How does Pain arise from Weariness, and what is Weariness?

Some Pain is felt in any wearied Member, not so much from any want of the Animal Spirits, as from a Solution of Continuity in the Fibres by continual Tension: But weariness it self is from some Consumption of Spirits in Part, and partly from the greater Afflux of Blood to the wearied Limb, so that the Spirits cannot sufficiently flow into it.

C H A P.

CH A P. II.

Of the Parts in General.

W H A T is a Part ?

It is what compleats the whole.

Is not a Part variously divided in Physick ?

Yes, Several ways, as first into Solid and Fluid.

What are the Fluid Parts ?

Blood and Spirits, which are in continual Motion, as has been said before.

What are the Solid Parts ?

All such as are not Fluid, or differing from them, as Skin, Flesh, Bones, Nerves, Membranes, Arteries, Veins, Hair, Nails, &c. of which we shall treat in this Chapter.

What, in a stricter Sense is a Solid Part ?

It is a Solid continued Body, fitted for some Use in the Oeconomy.

Why is it said fitted for some Use ?

That Tumors, Wharts, &c. which are annexed to the whole, may be excepted, for as they are of no use in the Body, they are not to be accounted Parts of it.

What is the second Division of a Part ?

Into Organical and Inorganical.

What is an Organical Part ?

That which requires a peculiar Conformation in order to the Discharge of some particular Action, as the Eyes, Ears, and Nose, &c.

What

What are the Inorganical Parts?

Which do not require any such peculiar Conformation, as meat Flesh, or a Membrane.

What is the third Division of a Part?

Into Principal, and Subservient.

What is a Principal Part?

That which is absolutely necessary for the Preservation of Life.

What are Animal Parts?

The Spirits, Brain, and Spinal Marrow.

What are the Natural Parts?

The Heart, Lungs, Stomach, Guts, Liver, and Genitale Parts,

What is a Similar Part?

Of which at first View it all appears of the same substance.

What a Dissimilar Part?

Of which it does not at first View so appear.

Why is it said at first View?

Because otherwise many Parts would be accounted Similar, which are not so, for there are very few in which there may not some difference of Substance be perceived. For Similar Parts, are reckoned: A Bone, a Carthilage, a Tendon, a Gland, Fat, a Nerve, an Artery, a Vein, a Lymphatick Vessel, and the Laeteals.

How is a Part divided in the Schools?

Into Spermatick, Sanguine, and Mixed.

Which are accounted Spermatick?

A Bone, a Carthilage, Hair, Nails, &c.

What are the Sanguine?

They are of four kinds, 1. Muscles, 2. The Flesh of the *Viscera*, 3. The Flesh, peculiar to every Membranous Part, as that of the Stomach, Intestine,

Intestine, Bladder, and Uterus, 4. That Flesh of which the Glands are composed.

What is a Mixed Part?

The Skin is accounted such, as it is a Part exactly suited to the Sense of Feeling.

Observation.

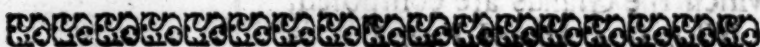
I much question whether all the Parts are such, as some of them to be only compounded from Seed, and others again precisely of equal Parts of Seed and Blood. Tho' I do not deny but some are, partly at least, formed from Seed; for when from the *Calliquamentum* of the Female Egg, which here we look upon as Seed, the Spirits and Blood break forth, they very probably work out from it Nerves, Arteries, Veins, and some other Parts; for the Vesicle, or *Membranula* of the *Punctum Salien*s is certainly in our Formation before the Blood.

Nor does it conclude any thing against the *Spermatick* Parts, that every Part is nourished by its like, for all the Body is nourished from the Blood; all that comes from that Mass (which consists of Particles of very different kinds) before it can be assimilated to the Parts, and rendered fit to be lodged in their Pores, so as to yeild them proper Nourishment, is first very much changed by the Natural Heat and Agitation of the Spirits.

All the Solid Parts which are red, have it from the Blood for of themselves they are white, as it appears from their Washing and Maceration, which take out the Tincture of the Blood, and therefore in Dropsies, and Chacexies where the Blood looses much of its red Colour, the Liver and other Parts look whiteish.

G

C H A P.



C H A P. III.

Of the several Kinds of natural Functions, and first of Hunger and Thirst.

W H A T is Hunger ?

It is an uneasy Sensation at Stomach, by which a Person is set upon craving something solid in order to remove it.

Observation I.

Therefore Hunger is the Perception of the Vellication at Stomach, and not the Appetite it self, which rather follow, it, for we may be hungry and not crave any thing, as when fasting.

Why is Hunger greater in Winter than in Summer ?

Because the stomachical Ferment is then sharpest, and Transpiration lesser.

What is the Cause of Hunger ?

It is an Accid, which appears from the Hungers being sharpened by such Things, and because they restore it when spoiled : And those things which blunt and destroy Accids, remove it, as Crabs Eyes, Harts Horn calcined, Pearls, Fat, Spirit of Wine, &c.

What

What is Thirst ?

It is an uneasy Perception of a Villication about the Mouth and Jaws, by Means of which, a Person is desirous of something liquid, in order to remove it.

What is the Cause of Thirst ?

Dryness, and a salt Humour ; for Dryness of it self does not occasion Thirst, because that is nothing else but an Absence of Moisture ; but as the Fibres of the Oesophagus grow dry, they rub one another with Uneasiness, and affect one another in their Motions.

It is also occasioned by that Motion of the Nervous Fibres as is propagated to the Brain, and Seat of the Soul.

Does not Thirst affect the Mind more than Hunger ?

We certainly experience Thirst to give the most grievous Uneasiness of the Mind, and to be much less tollerable than Hunger ; because of the want of sufficient Moisture in the Blood, the Oeconomy of the natural Functions is destroyed, and the Blood ceases to ferment : Then the Secretion of Spirits and other Humours from the Blood, and their Return into it again is hindred. Hence all the Actions grow languid, and at length by an Increasing Dryness in the Blood, ensues Death.

It is in this Place proper to treat of Chylification, but because we have already said enough about that in the Chapter of Humours, we shall therefore add but two or three things more before we come to Sanguification.

In the first Place, we believe that Digestion is much better perfected in the Night when we sleep, than in the Day-Time, when we are awake; at least if all that is taken in, and other Matters are equal.

For when in Sleep, the Blood and Spirits are not so much carried toward the Surface, the Stomach thereby gets the more Acid, and the Heart, is the more constricted, and the better encloses its Contents. Hence it follows that Supper, contrary to usual Custom, should be more plentiful than Dinner: Nor does it signify any thing that there is less Time between Dinner and the next Supper, than between Supper and the next Dinner; for certainly that which is taken in at a good Dinner is frequently not wholly digested before Supper, and so upon the Stomach there will be laid a double Load.

Besides, this does not prove a quicker Digestion in waking Persons, than in such who sleep, but only that the Chyle in such is sooner discharged out of the Stomach.

Why do some Persons after Eating, shiver, and grow Cold?

Because our Drinks are cold, and thence the great Number of Nerves in the Stomach are chilled, whence by the Motion of the Fibres the animal Spirits are more agitated, and thereby with more Vehemence than usual do they run into the Muscles. But this does not happen from the Cold in the Stomach, and its Blood thence communicated by other Parts successively to the Heart, for some quake as soon as a cold Thing is taken in,

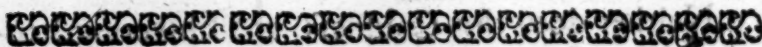
in, in which Time such a successive Communication could not be made.

Neither does this Coldness and Shivering happen, because in the Time of Eating, all the Heat (as it is commonly spoken) gets to the Stomach to perform Digestion, or goes back at least to repeat Chylification, and for that Reason leaves the other Parts ; for if this was the Cause, why does it not continue longer, for Digestion is not made in so small a Time.

Cold is the Cause of Shivering ; and therefore Things actually or potentially hot will not make it.

Observation II.

Those Things which relish most, are soonest turned into Chyle, because such Things are more gratefully received by the Stomach, from whence there is a greater Afflux of Spirits into it, and makes it constringe them more closely.



CHAP IV.

Of Sanguification.

WHAT is Sanguification?

It is the Change of Chyle into Blood.

Is this not done in the Liver?

It is done in the whole Body, but especially in the Heart, and there in its left Ventricle, where the Particles of the Chyle mixed with the Blood, grow very hot, and mightily agitated, and by variously rolling about strike against one another, until they become more divided, and at length by a different Reflexion of Light, turn red: Whence it is no wonder that coagulated Blood makes a heavier Mass than Chyle, although it has smaller Particles, because they are more flexible, ramous, and entangled than those of the Chyle, which is made by a more imperfect Division amongst one another by the stomachical Ferment.

What is the Cause of Sanguification?

It is Heat, or our Natural Warmth, which abiding in the Heart, from the Fermentation of previous Blood therein, it presently insinuates it self into the Pores of the following Blood, as it in Company with fresh Supply of Chyle, rushes into the Heart; as it strikes against some Particles of this which are the least formed, as it passes through the Heart, it is thereby the more collected.

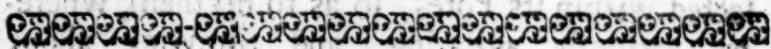
lected within its Pores, so as to fill them, whereby variously agitating and throwing about the Particles of the Chyle with those of the Blood in the Heart and Arteries, it divides them, renders them flexible, and disposes them to Redness.

How is Sanguification performed in the whole Body?

Sanguification also goes on in the Arteries and Veins, through which the Blood carries that Heat which it took up in the Heart; whence it is very probable that its finest Particles, by that Motion of Rarefaction, which they have besides that which is circular, are most thrown towards the Sides of the Vessels, while the thicker and less moveable are detained in the middle; whereby it happens, that in Blood-letting with a small Orifice, the thinner Part of the Blood only flows out.

What causes the Redness of the Blood?

Heat is the Cause of the Redness, and consequently that of Sanguification; which no Body will deny who considers that Quinces, which were before white, and Malt Liquors, with other Things, grow red by Boiling, as also they who take Notice that some Chymical Liquors ferment upon Mixture, and from such Fermentation obtain a Redness, and that Oysters which through a Slackness of Heat seem to be without Blood, after a certain Time by the Encrease of Heat, convert that nutritious Juice into Blood.



C H A P. V.

Of the Circulation of the Blood.

WHAT is the Circulation of the Blood?

It is that Motion, by which the Blood continually goes out of the Heart by the Arteries and returns to it again by the Veins.

Whence is it proved that the Blood does circulate?

From Phlebotomy in the Arm or Hand, and from a Ligature.

In what manner does the Blood circulate?

The Blood is carried out of the ascending *Vena cava* to the right Auricle of the Heart, thence into the right Ventricle; after its Rarefaction in that, it is thrown out into the Pulmonary Artery, and from thence into the left Auricles, and to the left Ventricle of the Heart; whence after its Rarefaction likewise there, it is drove into the *Aorta*, the ascending Trunk as well as the descending, and so dispersed through the whole Body; from whence it is again brought back by the correspondent Veins to the right Auricle; and that four ways, to wit, by the immediate Inosculation of the Extremities of the Vessels, and by its Transudation out of the Artery into its annexed Vein, or mediately through the Flesh, between the venous and arterous Branches; and by the *Sinus's* of the Branches in the Brain, when the Blood

is

is absorbed from the carotide and vertebral Arteries, and from thence returned to the Jugulars.

What is the End of the Bloods Circulation ?

The Nourishment of the Parts, warming the Body, the Generation of vital and animal Spirits, and preserving the Blood from Coagulation.

Can the Bloods Circuit be determined by any certain Time ?

That cannot be done ; for less Time is required for the Circuit of the whole Mass in hot Constitutions than in cold, because in such by a quicker Rarefaction of the Blood, the Heart is sooner excited to Contraction, or rather Constriction, by which the Blood is thrown forward : So also less is required in those who are in Motion, than in such as are at Rest, because in them by the Contraction of the Muscles, the Vessels are by Turns more squeezed, and the Motion of the Blood thereby promoted.

So also less is required in Feaverish Persons than in those who have no Feaver, unless we will say that the Blood does not flow faster in them, than in these, but only that by a greater Heat or Acrimony of the Blood, the Heart and its Auricles are more suddenly excited and constricted, and thereby the received Blood sooner thrown out again, but in lesser Quantity ; because by the sudden Irritation of the Heart and its Auricles, there is not Time for the Reception of a greater Quantity of Blood, and therefore altho' the Blood is sooner thrown out into the Arteries, yet because it is in a lesser Quantity, the whole Mass does not e'er the sooner finish its Circuit. Lastly

less Time is required for the Circulation of the Blood through the Vessels near the Heart, as the pulmonary, intercostals, coronary, &c. Dr. Lower believed the whole Mass to go its Round in one Hour, which is probable both from the Number of Pulses, which are at least Two Thousand in an Hour, and from the Quantity of Blood which after every Pulse, enters into the Heart, and by its close and violent Contraction is again thrown out of it: For that Quantity in Healthful and Grown Persons is not only a few Drops, or a Dram, or half an Ounce (as some believe) but at least two Ounces. This may be proved from the Capacity of the left Ventricle of the Heart, which will easily hold two Ounces, and from the utmost Extension of its Diastole; which is occasioned more by the Quantity of Blood than its Rarefaction, which is Naturally gentle, and not made by so great a Turgescence, as that a less Quantity might serve to fill the Ventricle: It also might be proved from the Quantity of Blood, which may be seen to flow out of the Heart of a Dog upon every Pulse, by cutting open the left Ventricle.

Suppose therefore the Quantity of Blood which enters the Ventricles in every Diastole, and is again upon every Systole thrown out, in Grown and Healthful Persons, to be at least two Ounces; it thence follows that in the space of one Hour (in which are counted Two Thousand Pulses) Four Thousand Ounces of Blood passes through the Heart, which together make Three Hundred and Thirty Four Pound.

Let us therefore take Twenty five Pound for the Quantity of Blood (although this is a great deal

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deal, it being most commonly some Pounds less) it follows that in the space of one Hour, the Blood must go round Thirty Times; and oftner if a less Quantity.

How very swiftly the Blood Circulates, appears further from this, that by cutting one of the Carotide Arteries, almost the whole Quantity of Blood will flow out in the Twelfth part of an Hour, which if so, in how short a time would it run out of the *Aorta*, or all the Arteries cut together? Yea, within the Twentieth part of an Hour, (which is but three Minutes) the Blood would wholly run out, if the Arteries of the Arms were tied under the *Axilla*, and the descending Turuk of the *Aorta* be pressed near the Heart, by thrusting the Finger into the left Side; for then the whole Blood would run out, besides that which gets into the Vertebral Arteries, and runs into the Carotides.

What further is observable in the Bloods Circulation?

It is remarked that the Blood does not run downwards faster than upwards, and therefore the Heart is nearest to the Head in a Man. Hence likewise it clearly appears why the Hand swells upon the hanging down, to wit, because more Blood descends through the Arteries than can be absorbed by its correspondent Vein, and by that means puffs up the Fibres more than usual; but the contrary happens upon holding up the Arm,

What further do you observe?

That when the Body is close bound with a Girdle it is hotter, because it keeps the Cloaths closer, and also because the Circulation being retarded

tarded towards the Extremities, it is rendred there by brisker in the inner Parts.

Does not the Blood Circulate in the inner Parts in a Syncope, as also in Hysterical Affections?

I answer, that in Hysterical Affections, and in a Syncope, &c. although the Circulation is interrupted in the Extreme Parts, as the Pulse testifies, it may notwithstanding continue in the Coronary Vessels, the Intercoitals, and Parts near the Heart, and perhaps in those Affections, sometimes the Circulation may be wholly stopped, (N. B.) So, that it may again be restored, by stirring up the Vital and Animal Spirits by Volatiles. So the red speck in an Egg, under Incubation, growing Cold, ceases to beat, but revives again upon the approach of a warm Hand or Breath, and repeats its wonted Pulsation.

Do not some other Humours, likewise as well as the Blood, Circulate in our Bodies?

As it already appears that the Blood does Circulate through the Veins and Arteries, so also the Liquor in the *Pericardium*, the *Saliva*, *Pancreatick Juice*, *Lympha*, *Spirits*, &c. are not destitute of a Circulation of a particular kind, because (as we shall see concerning every one in its proper Place) all in their turns proceed from the Heart and return to it again, except the *Bile*, of whose return to the Heart we cannot be certain.

C H A P.

C H A P. VI.

Of the Motion of the Heart.

HOW is the Motion of the Heart ?

It is Muscular.

Of How many kinds ?

Threefold, Contractive, by its Systole; Dilative, in the Diaſtole; and ſome ſtops which Intercepts, which is called its *Peri-Systole*.

Do the Auricles of the Heart alſo move, and how ?

Both the Auricles likewiſe in the ſame manner as the Heart have their Syſtole and Dyſtole; but while they are in their Syſtole, the Ventracles are in their Diaſtole, and on the contrary.

What is the Cauſe of the Contraction, or of the Syſtole of the Heart ?

The Syſtole of the Heart is made by an Influx of Animal Spirits, by this Means, that it is either irritated by the Quantity of Blood, or its Turgeſcence ariſes from ſome other Quality; for the Blood is accuſtomed to flow to any irritated Part, becauſe the Pores of the Brain are by the Motion of the Nervous Fibres enlarged; But the Syſtole is by no means made by a bare Concurrence of the Sides of the Heart, becauſe it could, by ſuch means only, never be ſo ſtrong in ſo lax a Part.

What do others ſay againſt this Aſſertion ?

They ſay that if after the Heart is taken out it be pricked it will yet Beat: But to that I anſwer that

that such Pulsation does not happen but by the remainder of some Blood still rarefying in its Ventricles, it otherwise could only be by some Spirits still in its Fibres, and consequently can be no true Pulse. This kind of Rarefaction I heretofore defended in a Thesis, under the Title *Of the Bloods Rarefaction.*

Whence do those Spirits proceed?

From the *Cerebellum*, which continually presses them forward towards the Heart, by the Nerves of the Eighth Pair, and by some of the *Par Vagum*, whence those Nerves being tied in a Dog for a day or two, Dr. Lower Asserts that he will Dye with a great *Languor* and Palpitation, and soon too, were there not some Spirits to get from the Intercostals, by Branches not easy to be tyed up. Whence it appears of how great a Use the Brain is to the Heart; the Spirits flow, as before-mentioned, to irritate the Heart to its Constriction, which Irritation it first perceives whilst 'tis dilated; whence the smaller the Heart is, as in Children, the Pulse is the more frequent.

Is not the Motion of the Heart quickened by Blood-Letting?

Yes, immediately after it, as appears by a quicker Pulse at that Time, which is chiefly occasioned by the Blood, having a free passage, and partly by its decrease in Quantity, with respect to the Subtile Matter, which by that means is not lessened in the Heart, at least if it duly abounded before in the Blood.

Is not the Constriction of the Heart made in all its Parts?

Yes, and the more it is furrowed withinside, to prevent its over Growth with Flesh, its Point is the more

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more pulled up to its Base, which is least moveable, and on the contrary in its Diastole.

Is not the Systole of the Heart very strong?

How strong it is may easily be perceived by putting the Finger into it, which will feel as great a Compressure as from the Squeeze of a strong Mans Hand: It also may be know by the length of those Winding passages which it throws the Blood thro' in its Circuit. In a Child labouring with a Palpitation, I have seen it lift up the Ribs of the left Side. In a noble Person I also observed so great a Systole that it was heard with Noise, by the By-standers, and some affirm the Ribs to have been broke by its Force. But such Contractions as these are preternatural, but that which is Natural may be illustrated thereby.

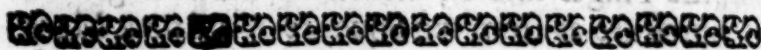
How do you further prove that the Systole of the Heart is made by an Influx of Spirits into its Fibres?

That the Systole is made by this means, is not contradicted, by the Contraction of the Heart or any part of it, after cutting out, upon pricking it, for that is in truth from the Spirits already existing in the Fibres, which before came thither through the Nerves. In like manner is it no Objection hereto, that the *Punctum Salientis* in an Egg upon its Incubation, does beat, where there are not any Nerves yet appear, for such Contraction also arises from an invigorated Membrane, constringing its Fibres when the least distended by the effervescent Blood, or other Fluid that it incloses; whence it supplies the place of a Muscle, and is the first Foundation of the Heart.

Why does the Heart beat most on the Left Side?

Because the great Artery goes out of it on that side,

side, its *Cusps* or Point inclines that way, and its Contraction is the most sensible there, because of the greater strength of the left Ventricle.



C H A P. VII.

Of the Pulse.

WHAT *is the Pulse?*

The Pulse is the alternate Dilatation and Contraction of an Artery.

What is the Cause of it?

The Blood; which, while the Arteries are in Contraction is pressed into them, and partly by its continued Rarefaction; and also by encreasing the quantity, with the preceding, it destends them, and this is called the Diastole; but the cause of the Systole is from the Efflux of Blood into the Veins, by which the Artery in some measure coincides, and partly by the Contraction of the Orbicular Fibres in each Coat of an Artery; by the Assistance of which, as long as they are supplied with fresh Spirits, the Artery is continually endeavouring to Contract.

Are not the Motion of the Arteries contrary to that of the Heart?

From what has been said it appears that, the Diastole of the Artery, is when the Heart is in Contraction, and *è contrà*, though they truly move after the same manner; likewise the Auricles in their Motion are contrary to that of the Ventricles.

Why do the Arteries beat and not also the Veins?

The Arteries beat from several Causes; first of all

all, as it appears from the Circulation, the Blood is propelled through them from a larger into a straiter Canal, and with such a Force, as must necessarily expand them: And again, because an Artery by its double Coat giving a greater Resistance to the flowing Blood, it cannot but strike hard against it in its Passage.

How do the Veins carry on the Blood?

From a straiter Canal into a larger, with a slower Motion; and as they are thereby more accommodated to the Bloods Passage, it does not strike against them so hard as is necessary to make a Pulse.

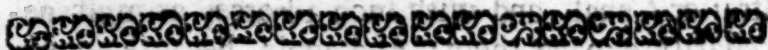
Is not the Pulse of an Artery felt in its Diastole, and not in its Contraction?

Yes, when it is in its Expansion, or Diastole, and goes back from the Finger; whence the Celerity of its Systole may be judged.

What is the Number of Pulses in the space of an Hour, and tell why they are not at all times equal?

There are at least, in a Healthful Person, Two Thousand Pulses in an Hour, as every one may know by telling them.

By the Affections of the Mind, and other means they may be altered: So in Persons who are Angry, Joyful, in Labour, or Running, &c. they are quicker; but slower in Fear and Sadness, &c. because of a different Influx of Spirits to the Heart, the Circulation of the Blood must be also different. In Children it is quicker, because the Heart in such is tender, and more irritable; the Arteries also are more dilatable, and the Blood thinner, and more disposed to Rarefy.



C H A P. VIII.

Of the Motion of the Brain.

WHAT is the Motion of the Brain?

It is a constant Motion, made by alternate Systoles and Diaستoles; it also has a Motion independent of its *Meninges*.

How do you prove the Motion of the Brain?

It is apparent from a remarkable Substance between the *Dura* and *Pia Mater*.

How is that Motion further proved?

That Motion will appear to Sight, upon taking out a Piece of the Skull and the Membrane under it: The Quantity of Blood also and Spirits which flows there, and the four Arteries the Blood is brought by to the Brain, cannot but elevate so lax a Substance, but the Heart is in its Systole, when the Brain is in its Diaستole; and *e contra*, as it appears by applying one Hand to the Top of the Head of an Infant, in the meeting of the vertical Sutures, and the other to the Pulse in the Wrist; for so at the same time the Artery (and consequently the Heart) will be perceived to beat with the Brain.

How therefore has the Brain a Diaستole and Systole?

It has its Diaستole from a Protrusion of Blood
and

and Spirits into it ; and its Systole partly from their Diminution, by which it subsides, and partly from the fibrous Substance of the Brain and *Pia Mater* which is irritated, invigorated and contracted.

Of what Use is the Expansion or Diastole of the Brain ?

A continual Supply of animal Spirits to the Nerves and Muscles.

H 2 C H A P.

C H A P. IX.

Of the Generation of Spirits.

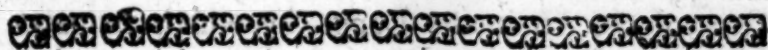
HOW are the Spirits generated, is it a Natural Action, and how is it brought about?

The Generation of Spirits is absolutely natural, and otherwise it could not be, but by a mutual Collision of the Particles of the Blood, and a violent Motion with one another, from whence it happens that some Parts are struck off, and some broke and subtilized, so that they become more volatile than in any other Parts of the Body, and fitter for Motion, insomuch that they may be accounted the Movers of the rest.

What Part of the Aliment is soonest made into Spirits?

Those Parts which before both into Figure and Activity approached nearest to the Nature of Spirits, as some Parts of the Spirit of Wine.

C H A P.



C H A P. X.

Of Respiration.

WHAT is Respiration?

It is that Motion by which the Air is alternately taken in and thrust out of the Lungs.

Of how many Actions does Respiration consist?

Two; Inspiration, and Expiration.

How, and by what Instruments is Inspiration performed?

Inspiration is partly performed by an Enlargement of the Cavity of the Breast, by which the neighbouring Air is thrust into the *Thorax*, and that thrusts forward other Air, (for this Universe is every where full, and there is not any where a Penetration of Bodies) 'till at length, some Part is taken into the Lungs through the Mouth and Nose, and fills up the Room made by the Dilatation of the *Thorax*; partly by the Elastick Tone of the Air or by its spontaneous Endeavour of Expansion, and lastly in part from the Pressure which it has from the Weight of the Incumbent Atmosphere; for by such Causes as these it is thrust into the Vesicular Substance of the Lungs, but not to avoid any pretended Vacuity.

How, and by what Instruments is Expiration performed?

It is done by the Constriction of the Breast and
H 3 Lungs,

Lungs, as also by the Incalescency and Rarefaction of the Air in the Lungs, by which its parts for want of sufficient Room do drive one another out.

Is not Expiration assisted by the Diaphragm, and do not the Lungs also concur therein?

In Inspiration the *Diaphragm* with its foremost Part ascends into the *Thorax*, but when the Lungs are full of Air, its hinder Part is depressed into the *Abdomen*, with the *Viscera* that lye under it: and the contrary it is in Expiration.

Is the Air that is drawn in expired all at once, and whence comes it?

The Air just taken in, is not all expelled at one Time in the next Expiration, but some part of it will remain in the *Vesicles* of the Lungs; but at the second Expiration that will be expelled: as something at the second Inspiration, may remain to be thrown out at the third Expiration, and so on.

Are there not some Particles of Water breathed out?

How much Water goes out with the Breath, may be seen upon a Vial or Looking-Glass, which is breathed upon in Winter Time, &c. which immediately condenses into Drops, or when in cold Weather we breath in open Air.

Whence does that Wateryness principally come?

It chiefly comes from Vapours collected in the *Kidneys* and *Lungs*, for they may be absorbed by the Lungs, as we see that the Blood extravasated into the Cavity of the Breast, may be taken up by the Lungs, and brought up into the Mouth.

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Can Air on the contrary, that is inspired, get through the Lungs into the Hollow of the Breast?

No, the Reason is because the little Pores which that little Membrane has that covers the Lungs, admit of a Passage from the Cavity of the Breast into the Lungs, but not *e contra*, and that because of their oblique Position to one another in the several Coats of that Membrane, which is in Imitation of Valves; as we see it is ordered in the Orrifices of the Urethers, which transmit the Urine into the Bladder, but suffer none to come back again the same way.

Cannot Respiration be performed, if the Lungs or Breast are hurt?

One Side of the Breast being opened, or one Lobe of the Lungs being taken away, Respiration may notwithstanding in some Measure go on, because indeed some Air may yet thro' the Mouth and Nose be protruded into the Lungs.

Is Respiration of it self a spontaneous Action, or truly voluntary?

It is a spontaneous Action, because it is performed without our Knowledge or thinking of it; but it is in some Measure notwithstanding voluntary, because we can at Pleasure hasten or retard it; and this we can do because the Motion of the *Thorax* is ordinarily made by an Influx of Spirits which come through some Nerves from the Spinal Marrow, for otherwise inasmuch as it is performed by the Spirits which flow through the *Par Vagum* from the Brain, which is not under the Influences of the Mind, Respiration would be involuntary. But notwithstanding this, it may be understood how Respiration comes to go on so

orderly, *viz.* because in Inspiration and Expiration some Parts are successively irritated, by the successive Motion of Spirits through the nervous Fibres, especially of the *Par Vagum*, which consequently procure successive Contractions and Dilatations, that is Inspirations and Expirations. In Inspiration the intercostal Muscles are irritated, and the *Diaphragma*, and others serving to Expiration while they are lengthened by their Antagonists: So also the Lungs are irritated, when the Blood for want of fresh Air is not enough cooled, and so expands it self too much, and thereby stretches the Vessels: And on the contrary in Expiration, I make no question but that the Parts serving to Inspiration are so irritated,

What is the End of Respiration?

Its chief End is the Voice, to the Formation of which the Air is necessary; as also for the Exclusion from the Blood, certain fuliginous and adust Particles; (which are necessarily produced from the natural Heat of the Body) for a sort of Refrigeration of the Blood; and for the drawing odouriferous Particles to the Nose,

As for fuliginous Particles, they continually are brought to the Lungs with the Blood by the pulmonary Artery, and are there breathed out, otherwise the Heart would be suffocated.

For what belongs to the Cooling of the Blood, it may here be learned by what Means the inspired Air has that Effect, and from hence, that because all Air is not fit for Respiration. Some indeed I know there are who will not have it that the Lungs are a Refrigeratory to the Blood, but by many Arguments alledge that they ventilate and
blow

blow up that vital Heat which resides in the Blood, but it returns to the same by what we intend by Refrigeration, which is not such as to deny the vital Heat, but rather establishes it, for by want of Respiration the Blood looses its Heat.

Why is the Motion of the Lungs quickned in Feavers?

For while the Blood is from the right Ventricle of the Heart thrown out into the Lungs, and then from the left Ventricle into all Parts of the Body, it is too much dissolved, and undergoes a feavourish Rarefaction, and thereby pass almost altogether into Vapour and Smoak; insomuch that it cannot contain its Heat sufficiently, as it was wont to do amongst its ramous Parts whilst in its natural Consistence, and so the Heat sooner expires. This happens because the Blood by being too much rarefied in the pulmonary Artery, and by its Turgescency moving in it every way, shuts up after it the Valves of the right Ventricle, and so by confining the Blood and Fumes, it begins the Suffocation of the natural Heat; and this I take to be the Cause of such as are hanged, although as a concurring Cause of their Death, may also be the Defect of a due Influx of Spirits to the Heart, by means of the Compressure which is made upon the *Par Vagum*, and the Seclusion of the carotide Arteries.

Do not they who breath with Difficulty, easily fall into a Pthisis?

They whose Lungs move with Difficulty, easily become Pthisichy, as crooked Persons, because their Lungs by not freely opening and constringing again cannot well discharge the Blood of the
Fumes,

Fumes, and other Acrid and Gross Particles, which occasion their Obstruction, and at length their Corruption and Erosion.

Does the Fetus respire in the Womb?

It is certain that it does not, and may be proved by divers Arguments.

Why then if the Fetus does not respire in the Womb, is there so much necessity of Respiration immediately upon its Birth?

This is because by the Motion of the *Fetus* in its Birth, its Blood is put into a much brisker Circulation, and rarefies the Lungs; then the Ambient Air by its Elasticity, or by the atmospherical Pressure, insinuates its self into the Lungs, whence they are irritated, and endeavour by the proper Contraction of the Breast to throw off the irritating Cause; and so by the continued encrease of the aforesaid Causes, the Irritation encreases, and consequently Respiration, and its indispensable necessity.

How do Divers manage it under Water?

Divers can remain a considerable Time under Water without Respiration, because they know how to furnish themselves beforehand with a good stock of Air, and because the Natural Heat is less in them than in others, some are said to respire, and to know how to separate the Air from the Water, by the application of the Hand or some other Instrument to the Mouth.

How is it with Hysterical Women, while they seem not to Breathe?

Some Hysterical Women have been reported to have Lived a long Time without Respiration; but I cannot think the Breath enough to keep up that Languid Heat which they have, although not observed

observed by the By-standers, or at least that the Air of its own accord enters their Lungs and passes out again, sufficiently for their purpose.



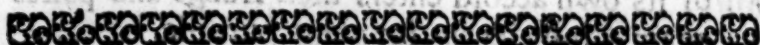
C H A P. XI.

Of the Peristaltick Motien of the Stomach and Guts.

WHAT is the Peristaltick Motion?

The Peristaltick Motion, is that Vermicular Motion by which the Stomach and Guts are continually and successively contracted, like the creeping of a Worm, from one end to the other. This Motion is sometimes inverted, and then is called Epistaltick, which is occasioned by the Spirits rushing too impetuously into the Fibres; or from some Compression of the Fibres, the Spirits as it were fly back, and by inverting their Motions occasion Vomitings.

C H A P.



C H A P. XII.

Of Nutrition.

WHAT is Nutrition?

It is a Change of the Aliment into the substance of a Living Body, by which the Body preserves it Bulk in the same Proportion in all its Parts: or Nutrition is a Natural Restauration of decaying Parts.

Nutrition is not done by Attraction, nor by any Juice flowing from the Nerves, but more from the Chyle.

Concerning Accretion in Children.

Of the Decrease in Aged Persons.

Of Generation, &c. we shall here say nothing, because they have already been spoke to in what has gone before.

The End of the Phisiological Part.

T H E





THE GROUNDS OF PHYSICK.

Part the Second.

HYGIEINE.

CHAP. I.

Of the Non-naturals in General.



WHAT is Hygiene?

The Art of preserving Health.

How many Parts does it consist of?

Three, 1. In preserving present Health, 2. In avoiding Diseases, 3. In procuring long Life.

What

What are called the Non-naturals?

What are really necessary to the preservation of Health, but when they are ill used, may injure it:

What are the Non-naturals, and how many?

They are Six; Meat and Drink, Motion and Rest, Sleep and Watching, things excreted and retained, and the Affections of the Mind.

Are not the Non-naturals indifferent either to benefit or injure the Constitution?

Yes they are; as they are well or ill used, and they are as it were of middle Nature between such things as are in themselves Helpful to Nature, or contrary to it.

How can some things which are against Nature in a different Consideration be Helpful to Nature?

Such things in the same sense appear to be different; but in a different Consideration, that which is according to Nature may be injurious or against Nature, as the Motion of an Animal is according to Nature, as a Humane Body has that Motion from Nature; and it may be Non-natural (or contrary to Nature) as it is regarded with Relation to its Usage.

What do you mean by a thing being ill applied and whence does it arise?

By ill applied, may be understood according to its various Administration to this or that Person; thus that which to one Person is ill administered, may be right to another, according as Nature and Custom varies in different Persons, to which much is to be ascribed in the Use of the Non-naturals.

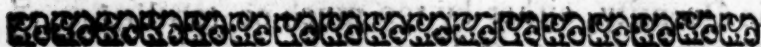
Moreover the very same thing which now may be beneficial, at another time may be injurious; whence upon several Accounts an ill use may be made

made of these things; as for Example, by erring in Quantity, either by too much or too little; in Quality, that is, in Heat, Cold, Moisture or Dryness, or by too much Bulk, Smallness, or Viscosity, Acidity, Saltiness, Dryness, Hardness, &c. or in the Time of Application, as, for Instance, Eating and Drinking at unseasonable Hours; or in the Order of Ingestion, as by Eating this or that, first or last, &c. as it may be better understood when we come to treat singly of the Non-naturals here mentioned.

How are the Non-naturals said to be Necessary?

According to their Kinds, not according to their Species, so Meats in general are necessary, but not precisely this or that particular kind. But how necessary the Non-naturals are, will further appear by what is about to be said of them singly.

CHAP.



C H A P. II.

Of Air.

WHAT do you understand here by Air? We do not here consider it *per se*, Simply, but as it encompasses us; that is, as it is loaded with a variety of other Particles, and by them makes impressions upon us.

In what manner does it Affect our Bodies?

In two Respects, outwardly and inwardly, and in both again it is different, as considered in it self or mixed with other Particles.

Can Air by the Corruption of its own proper Substance affect us?

If Air has much Water mixed with it, it much cools us, if it has a great Quantity of Subtile Matter mixed with it, and strongly moved, it will much Heat us.

If it has a mixture of some things which are Narcotick, as it happens in some Places, it affects us with Stupidity, yea deadly Sleep, and Death, if it be impregnated with a Pestilential Contagion, it gives us the Plague.

Does not the Air more continually and more closely affect us than our Food?

Since both do very variously affect us, this cannot exactly be determined; but this is certain that both their Influences are very considerable and

and indeed more constantly and lasting are those of the Air than of the Food ; for it's hardly possible for us to live, even one Moment, without Air.

What does the Air do in us ?

It tempers the Heat of our Blood, and without it we should soon be suffocated.

What Air is most conducive to Health ?

That which is most clear and uncompounded, agitated by wholesome Winds, not tainted with Diseases, dead Carcasses, Sincks, and other putrid and corrupt Vapours and Exhalations.

Do not different Ages and different Temperaments require different Temperatures of Air ?

To a temperate Person it ought to be temperate; to an intemperate Coldness, a warm Air is needful, and *e contra*.

Under the Air are not also comprehended the Winds, Regions, Stars, and their Sorts ; do not also the Seasons of the Year affect humane Bodies ?

Yes indeed.

What is the Wind ?

The Wind is nothing else but the Air loaded with Vapours and Exhalations, and driven round the Earth.

What Use is it off ?

It preserves the Air, which otherwise would not be so much moved, from Putrefaction, and dissipates the Infectious Particles which happen to mix with it.

How many Winds do the Sailors count upon their Compass.

Some, twenty four, others, fourteen, others, twelve,

twelve, but commonly there are reckoned thirty two.

Which are the cardinal Points ?

They are four, 1. NORTH, which in our Clime is cold and dry. 2. SOUTH, which is hot and moist. 3. EAST, hot and dry. 4. WEST, cold and moist.

What do you say of the Healthfulness of the Wind ?

The Southern is most unwholesome, because it produces a Dulness of the Senses, and clogs the Motions of the Body.

Next to this in its noxious Qualities amongst us is the Northern, and the Western Wind.

What say you of the Eastern ?

That which blows in the Morning is the purest, because it comes from that Point where the Sun is, and so of the Western if it blows there in the Evening.

What is a Region ?

It is a Part of the Earth, which is remarkable in the first Qualities, by the more right or oblique Descent of the Sun-Beams.

How many Regions are there ?

There are chiefly five ; 1. The Equinoctial Region, which lyes under the Zodiack. 2. The Northern, in which we live, lying between the Circle of *Cancer* and the Arctick Pole. 3. The Meridian, between the Circle of *Capricorn* and the Antartick Pole. 4. The Oriental Region, and 5. the Occidental.

What Changes do the Stars, make in the Air ?

The Stars have their Changes from the Sun, especially in the Solstices, and from the Moon.

Consult

Consult hereupon an elegant Treatise of Dr. Mead's
de Imperio Solis ac Lunæ, &c.

*What Changes does the Air undergo in Spring,
Autumn, Summer, and Winter?*

In the Spring, we observe the Air to be remarkably altered, because the Sun begins to approach us with more direct Beams; and because some more active Principles are stirred up by the Heat of the Sun, which lay all Winter buried in the Earth, by whose Means, and their Effervescency, the Air is broke into diverse minute Particles, as it is more and more altered by the Sun's Heat, and according to its greater Motion it requires a greater Space; and the nearer the Sun approaches us, still the more elevated the Atmosphere grows.

What further is the Effect of the Spring-Air?

The Air at this Time by its being impregnated with much subtile Matter, both the ambient and that which is inspired gives a brisker Motion to the Blood; and by mixing such Matter with it, renders its grosser Parts more fluid, by which Means Persons are rendered more chearful, and readier in performing any Action.

What farther from the Spring Air?

If any Obstructions happen to have been made in the foregoing Winter, the Blood by its greater Effervescency grows more dissolved, and the obstructing Matter if it happens to be again mixed with the Blood, and according as it is from thence again discharged produces periodical Feavers, and other Diseases.

1. *Observe*, These Things may be easily understood if we consider the Intemperature of the Air, that it is sometimes hotter, and sometimes colder. The Blood sometimes ferments more and at others less, and by its irregular Motions often produces Coagulations and Obstructions.

2. *Observe*, In *March*, the Air is most wholesome, in *April* and *May*, which comes still nearer to Summer, it is more temperate, and the Oeconomy of the animal Juices is then most perfect.

3. *Observe*, In *July* and *August* the Air is too hot, and therefore unwholesome; for by stocking the Blood with heterogenous Particles both from it self and the Earth, the regular Bonds of Mixture in the Fluids are destroyed, and the Blood being now defrauded of its most subtile Parts, which most conduce to the Service of the Oeconomy, insensible Transpiration is lessened, and the Blood thereby infected.

4. *Observe*, In Autumn Men are taken with Feavers and other Diseases, for during *August* the Fermentation of the Blood continuing in the ensuing Month by the Encrease of Cold, the Juices suddenly growing thicker, occasion various Obstructions and malignant Feavers, because the Blood in the preceeding Months had been robbed of its Spirits. Here it might be added that the much eating of unripe Fruits, whose Juice injuring by its Coldness, the Ferment at Stomach cannot be digested, but corrupts rather; by which Means,

Means, in Autumn Persons are subject to Feavers, Fluxes, and the like.

(Summer.)

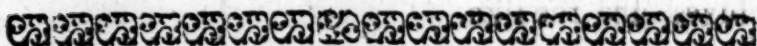
And that the more, by how much the preceding Summer has abounded with Heat, and exceeded in Fruit.

(Winter.)

The Winter by a successive Coldness of Air, does not suppress the Effervescency of the Humours, but so far only as is necessary to their greater Perfection; for the Transpiration of the Humours decreases by means of the greater Pressure of the ambient Air upon the Body, which by being detained inward, renders the Mass of Humours more fluid, and the more disposed to Effervency.

The Ferment at Stomach is also sharper and more in Quantity, and thereby the Food is better turned into Chyle.

It is not agreeable to old and decrepid People, because of the Decay of their natural Heat, but to young Persons, and sometimes such of an ill Habit too, it is for the most part healthful.



C H A P. III.

Of Meats and Drinks.

WHAT are Meats ?

The most solid of our Food, and the grossest, chiefly to take away the Sense of Hunger.

Why do you say chiefly ?

Because as some of the thinner Meats contribute to abate Thirst, so some of the grosser Drinks, will remove Hunger. No one can be ignorant of the great Necessity of both these, and how much we may be injured by either.

Is there not a great Difference in Meats ?

Yes; for there are Meats of a good and a bad Juice, of a more easy or a difficult Digestion, of much or little Nourishment.

What is the best kind, and which is the worst ?

The best is of a good Juice, of easy Digestion, and containing very little Excrement; and that which is the worst is just the contrary.

Which is the best Bread, and what are its Differences ?

The best Bread is that which is made of good Wheat, well fermented; there are four Kinds of Bread, 1. That of the finest Flower. 2. That of a coarser Sort. 3. That has much Bran in it. 4. There is a Sort made of Rye; which is black, and heavy upon the Stomach,

What

What is the best Sort of Flesh?

Of *Quadrupedes*, the best is Veal, after that Mutton, and Goats Flesh. Of Birds, Pullets, Capons, Pidgeons, and Partridges excel.

What are the best Kinds of Fish?

Of Sea-Fish, Cod, and Sole; from the Rivers, the Perch, and Pike.

Of what is produced from Animals, the best are Eggs, and Milk; from Fruits, Grapes and Figs.

From the foregoing 'tis to be observed,

That to every Person promiscuously the foregoing Meats are not the best, and most wholesome; nor is there any indeed that agrees with every one.

But it is to be considered whether each Sort particularly will agree with such a particular Person: for to such as have strong Stomachs (as Plow-men, Soldiers, Water-men, &c.) Beef and Pork are best, because they require a more solid and gross Blood, which will give large Nourishment, and not so soon be wasted.

It has been mentioned concerning Fish, pray what Sort of a Blood do they make?

Although many have had a bad Opinion of Fish, yet they make a good Blood, and of a moderate Consistence; they are of a light Digestion, especially Shell-Fish, and therefore must be good for those who are subject to Phlegm in the whole, or in any Part of the Body.

In what Order, pray, are Meats to be eaten?

It is the Custom to eat the grosser first, that it might be the better impregnated with the Acid that is in the bottom of the Stomach. But in my Opinion

there is such a Confusion of all that is taken in, that no Order can be preserved as to what is taken in first or last.

When ought People to Eat ?

When Hunger Prompts them to it, and the Stomach is empty. Take Notice, that some are Hungry, while the Stomach is yet full, from too much or too great an Acid; which Hunger is not Natural, and therefore to be checked, not by Diet, but by Medicines.

How often is it proper to Eat in a Day ?

This cannot be generally determined; for Choleric Persons for Instance, as their Appetite more regularly returns, and are of a Dryer Habit, may Eat though moderately three or four times a Day: Phlegmatick Constitutions once only, because they bare Hunger more easily, and not waſt ſo much Blood; Melancholly twice or thrice, because they have more Acidity; Sanguine Constitutions may keep a *Medium* between both.

How much may be Eat at a Meal ?

So much as will abate Hunger without overloading the Stomach: The Quantity of Food is to be varied according to the different Constitution, Strength, and Age of a Person, one Quantity is convenient for Young Persons, another for Old; one for Weak, another for Strong; one for the Healthful, another for the Sick; one for the Choleric, and another for Phlegmatick; one for such as exercise most the Body, and another for such as most employ the Mind.

It is better to Eat something too much than too little, and therefore ſome conſult rather their Luxury and Pleaſure, than neceſſity and a real Hunger.

Hunger. It is of Use what *Celsus* commends as a secret in preserving Health, and prolonging Life; that a Person should sometimes go to Extreame, and be Changable, but that which is done with an Appetite is best, *viz.* to Eat sometimes plentifully and at others sparingly, but the most plentiful is best.

For so by degrees the Stomach accustoms it self to have sometimes an Excess without much uneasiness, and to digest a little more than usual.

How ought the Food to be accomodated to different Constitutions?

The Qualities of the Food are to be considered according to the diversities of Temper, Age, Time and Custom; so to hot and dry Constitutions agree best what is cold and moist; so to Children that which is tenderer than to Grown Persons and Men; so Food must be more cooling in Summer than in Winter; and so lastly to such as have been accustomed to firmer Food, such is more proper than that which is more flaccid and tender.

Boiled Meats are more easily turned into Chyle than Roasted; but the latter give most Nourishment, because they more abound with Nutritive Juice, as appears by their Gravey when cut; for in Roasting these obtain a Hardness on the outside that keeps their Juices in the better, which in Boiled are drawn out by the Broath; and therefore Roasted are more proper for such as Labour hard, and Boil'd for those who are Unactive. But whether Chilification goes on better in Day time than in the Night, and so whether the Dinner should exceed Supper; and if the dissolved Food leaves the Stomach in the same order as it is taken

taken in; and likewise why we are cold after Eating, &c. may be soon accounted for in the Chapter of Chylification, which must be consulted, in our *Physiology*, Part 1. Chap. 8.

What are Drinks?

The Thinner and more Liquid Parts of our Aliment, for the removal of Thirst.

Name some of their kinds?

The chief kinds are Water, Wine, Mead and Beer.

Does Water Nourish?

Yes, Water is no mean Aliment, for some Persons who drink nothing but Water Live very well, and seem refreshed after drinking it.

It further appears from Experience that Water alone will Nourish, from the Growth of Fish in a Cestern, and from Plants and Fruits, which sometimes are found heavier than the Earth out of which they are produced.

What sorts of Water ought to be Chosen?

There are truly many kinds, but the best is Spring Water, which is Clear and Sweet, without any Taste, and of the Colour of Air. Some judge of the goodness of the Water by its Lightness, but that is not to be according to its Lightness in the Scale; for oftentimes bad Waters weigh less than those of better Note. That is the Lightest Water which is most easy upon the Stomach and in the Bowels; consult Dr. *Martin Lister*, and other Authors who have professedly treated of Waters.

What is Wine, of how many Kinds, and what are its Virtues?

Win is a Juice pressed from Grapes. The differences,

differences of Wine are many, as in Heat, Taste, Flavour, Body, and Age.

Wine is hot and dry, unless it be from unripe Grapes, and then it is cooling.

The best Wine is that which is of a middle Flavour between Aufteer and Sweet.

Sweet Wine is very nourishing, and is good for the Lungs, but it breeds Choler.

Aufteer Wine on the other side is hurtful to the Lungs, and is very Binding.

Wine of a fine Flavour is very Cordial, but it affects the Head afterwards.

Red Wine strengthens the Stomach and other Parts, and makes a laudable strong Blood; and if it is of a good Body it encreases Blood, and Nourishes, but occasions Obstructions. That which is thinner is more opening, and passes through better, but is not so Nourishing.

New Wine or Musk is not so hot as old, but it breeds Flatulencies, unless it Purges.

Old Wine most disturbs the Head. Rhennish Wine, by its great Thinness, and Crudity, easily puts the Juices into a Flux, and seperates something from the Mass, whereby the Gout is produced.

What is Beer, its Kinds, and Virtues?

Beer is made from Water, Malt, and Hopps, Boiled together. Hopps are added, because it preserves the Drink, and purifies the Blood, and according to its Quantity the Beer is more or less Bitter.

That Beer is most wholesome, that is duly Boiled and Worked; for not being well worked it produces Obstructions and Gripings.

Some

Some Beer is stronger than others, as it has more or less Malt in it, so some is higher Coloured, and others paler, as it is more or less boiled.

What is Metheglin, or Mead?

It is made of Water and Honey; some has more Honey and others less; so some is Boiled and Defpumated, and others made only by Digestion, but that is cruder, and more apt to bring Obstructions; but that which is boiled is grateful and good for the Lungs.

What is Cyder, or Apple Wine?

It is made of the Juice of Apples, or Pears either Sweet or Sower, squeezed out with a Press, and afterwards like Wine, fermented and defecated.

This Drink is cold, but the Hotter if it be made of Sweet Fruit. It is indeed grateful, but windy, and flies up into the Head.

How much and in what manner are we to Drink?

These things being premised, I say that a Person ought to Drink so much as is required to dilute the Food; for dry Meats alone will not dissolve, because they are not easily penetrated by the Accid of the Stomach.

On the other Hand, where People Drink too much, there the Accid will be too much diluted, and with the Drink be carried into the Guts; The Food also will Swim about in the Stomach, and thereby be hindred in its Dissolution.

It is sometimes better to Drink at Meals often and a little at a time, than (as the Custom is with some) to pour down one or two large Draughts after Eating; for so it is better mixed with the Aliments, and Chewing is helped.

But

But I would not so rigorously, as some, enjoin the not drinking before Meat, especially to dry Stomachs, for in such the Drink is as soon mixed with the Eatables, as if it had been taken in some time after Eating. But to Drink before a Meal is not good, because thereby the Accid is washed off the Stomach, before the Food gets to it.

Drinking after Dinner is condemned by many, and the contrary is observed by several.

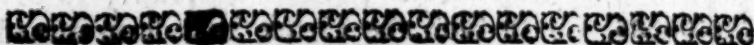
It is certain that drinking after a Meal, hinders Chylification, and washes away the Accid that is about to divide the Parts into Chyle.

Yet it may be convenient to drink something after Dinner, if Digestion is wholly or almost completed, and especially upon being Thirsty.

Is it worse to exceed in Eating or Drinking?

It is much worse to exceed in Eating, as it so Relaxes the Fibres of the Stomach by their continual Stretch; as because also it leaves behind it greater Crudities, from whence arise afterwards Obstructions and Vitiated Digestions, &c. But excess of Drinks is bad, as it runs through the Passages too soon, and is thrown out by the Emunctories.

C H A P.



C H A P. IV.

Of Sleep and Watching.

W H A T is Sleep?

Sleep is the *ordinary* and nearest Indisposition of the external Senses.

Why in the Definition do you say Ordinary?

To exclude Appoplexies, Lethargies, &c.

What is the cause of Sleep?

It is a Relaxation and Subsidence of the Fibrills, which chiefly make up the Brain, so that the Motions made upon the Organs of the Five Senses, cannot be duly propagated to the seat of the Mind, so as there to be taken notice of; in the same manner as we see a Motion made upon a slack Chord not so readily communicated, as that made upon a tense one.

What is the cause of Sleep, and whence does it arise?

From hence; because the Animal Spirits, either by their defect, or by some Sluggishness or Stagnation, do not sufficiently blow up and expand their Tubes. So after this manner after hard Labour we are inclinable to Sleep (unless the Spirits are thereby rendered more pungent)

Again, after a Meal or Drinking we are apt to Sleep, because then the Brain is overcharged with moisture, which relaxes its Fibres; and perhaps

haps because some steams retard the Motion of the Spirits.

Yet there are some who by hard Drinking (unless the Liquor has something in it Narcotick) sleep but indifferently, which is because the Spirits are enflamed and rendred too Hot.

That Sleep is necessary to Life appears from hence, because no one can Live without it; as it recruits the Animal Spirits, which are wasted by the Exercise of the Senses, or Animal Motion during being awake, and not because in Sleep there are more Spirits made (for I believe that by a greater Motion in the Blood, and Tension and Porosity of the Brain there are more made while a Person is Waking) but because in Sleep, where there is a total absence of Sense and voluntary Motion they are not so much exhausted.

Notwithstanding which Sleep ought to be moderate, that is suited to every ones Constitution, and in Proportion to the wast of Spirits which has been made.

What are the Consequences of that Sleep which you call Moderate?

It adds to the strength of the Body, it moistens it, and renders Persons more chearful in Exercise. But too much Sleep makes the Spirits more sluggish, it moistens and relaxes the Brain too much, and renders Persons more stupid and dull, as on the contrary very much Sleep drys the Body too much, and emaciates and weakens it.

It need not be wondred at that Sleep moistens the Body, for by a greater Influx of Animal Spirits in time of Sleep, all the Parts closing, are inflated, and therefore the Pores are more shut up, and

and also because at that time the natural Heat being less there is not so great a Transpiration made of the Juices:

That the Heat (where we speak of the Natural Heat) is least in time of Sleep, is already proved; but that at that time the Animal Spirits do not so plentifully flow into the Habit of the Body, appears from hence, because the Mind does nothing then towards determining the Animal Spirits into the Muscles; and therefore the Muscles of the whole Body are then only irrigated with that proportion of Spirits, which is afresh separated in the Brain, and slowly flows into the Nerves in order for their Repletion.

In what condition is the Mind in sound Sleep?

It ought to be conscious of nothing, but insensible, that is not to perform any Animal Operation; and though in a Dream we as it were discourse and reason, so as to arise and walk, and do other things as Night-Walkers, yet such Sleep is interrupted and imperfect, and therefore we see Persons not refreshed by it very little more than if they had been waking.

Some will have it that all Action of the Mind does never cease, affirming, that its very Essence consists in Thinking, so that, without it, it ceases to be, but that its Cogitations are then weaker, or at least by us less taken notice of, and that even in the Sleep of an Apoplexy, yea in the *Fetus*, it always thinks something; for otherwise it cannot be understood how it comes to be disposed to think from a corporeal Substance, for if so the effect would be more noble than the Cause.

Notwith

Notwithstanding in Sleep, the vital Actions are performed ; as the Motion of the Heart, Respiration, the peristaltick Motion, Digestion, &c. because such are independent of the Mind, and are performed by the Influx of the Spirits from the Brain, which is not under its Subjection.

How is profound and quiet Sleep obtained ?

From Rest in the Night, in a soft Bed, for lean and dry Constitutions, but something harder for fat Persons ; and with the Head lying higher or lower, as the Parts of the Body are more or less affected with such particular Postures.

Is Sleeping in the Day-Time so bad as some judge it ?

Many forbid it, especially after Dinner, as it fills the Head, and brings a Dullness upon the Senses ; yet I cannot think it so bad, especially in those who are used to it, for so the Spirits and Strength are renewed, which were lost by Exercise ; yea, the Custom now prevails among the wealthier Sort, of taking a moderate Afternoon's Sleep, and without any Prejudice. And in Truth there does not appear any Reason why it should do any more Hurt than that which is in the Night, unless we say that it lessens that, and by so doing renders the Night tedious.

How long may a Person sleep ?

The ordinary Time is seven Hours, for in that Time Digestion is generally finished, and the Chyle distributed for the Recruit of Spirits and Juices.

With some, more Sleep agrees, with others less. So in Children, because by the Openness of their Skin, they perspire much. and because they are

naturally very moist ; longer Sleep is required, nay, it is natural to them.

Old People, likewise that are dry and chollick require long Sleep, because it moistens them and restores new Spirits ; but with phlegmatick and fat Persons, it is shorter. It ought to be longer also with those who are wearied with Labour.

On which Side is it best to lye ?

A great deal is therein to be allowed to Custom.
What is Watching ?

It is that State wherein the outward Senses are readiest for Action : I do not say that it is an Action of the Senses, for I believe that one may be actually awake in a Dungeon, at least some time, when they can neither see, hear, smell, taste, or feel ; or when a Person is employed in deep Thoughts ; for such a one cannot be said to be asleep ; otherwise it might have been defined that Watching, is the Exercise of the Senses, and Sleep their Cessation.

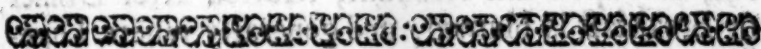
What is the Cause of Watching ?

It is a due Tension of the Fibres, made by the Influx of Spirits into them from the Brain, so that any Impression upon the Organs of Sense may be easily conveyed to the Seat of the Mind, and there discerned ; whence such wake very much who have their Spirits too much agitated, as in Feavers, Hunger, Phrensies ; whether it be they that are in themselves too hot, volatile, or acrid, or have any foreign Particles mixed with them.

What

What are the ill Consequences of too long Watching?

It dissipates the Moisture too much, and extenuates and dries the Body, it brings Crudities, and weakens the Brain.



CHAP. V.

Of Motion and Rest.

WHAT is here meant by Motion?

Here Motion is Labour or Exercise.

What is the best Motion?

Walking, Racket, Running, Riding, are the best to raise Sweat; they excite therefore the natural Heat, and carry off Crudities.

How is the Breath altered upon Exercise?

First of all by the Blood's quicker Passage to the Heart occasioned by the greater Pressure of the Muscles upon its Vessels, and by its greater Heat, soliciting more frequent Respirations.

And also because such a plentiful Influx of Spirits into the Nerves, as is necessary for those Motions could not be made, without some Increase of their Influx into the Nerves serving to Respiration, especially into the *Par Vagum*, where they have the opener Passage by the continual Derivation of Spirits from the Brain in constant Respiration; as also because this Nerve by the Multiplicity of its Origine, the more readily takes up the Spirits.

K 2

When

When is Exercise to be used?

It is the best in the Morning fasting; for so if any thing remains of the former Meal it is thereby wasted; but if it be upon too full a Stomach, before the due Time for the Expulsion of its Contents, it corrupts the Juices and brings Obstructions, and upon this Account, Motion after Dinner or Breakfast is blamed, and generally where Digestion is not quite finished. Yet the Ancients used to exercise after Dinner, but they, contrary to our Custom, supped plentifully, and eat but sparing Dinners.

Is not too much Exercise hurtful, as also does gentle Walking after a Repast do Harm?

Yes truly, as Exercise is too violent, because it dries and weakens the Body, and wastes the acid at Stomach. Yet after a Repast gentle walking may be of Service, as it helps the Food to settle it self the better in the Stomach.

Is therefore Exercise necessary?

Yes certainly, for from what has been said appears the Advantages of it with Regard to Health, and how if it is not duly used it proves injurious.

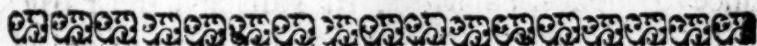
What are the Consequences of continued Ease?

It produces vitious Humours, it obstructs the Pores of the Body with Recrements, and renders it dull in Action.

When ought Rest to be allowed?

After Weariness, and while Chilification is performing.

C H A P.



CHAP. VI.

Of Excretion and Retention.

WHAT is to be understood by Excretion and Retention?

Things to be excreted, are the *Fæces* of the Guts, Urine, the Matter of insensible Transpiration, the Menstrual Blood and Seed. For by their due Excretion Health is mightily secured, but otherwise in Danger.

What are the Consequences of retaining the Fæces of the Guts, and how are they in a natural State?

The *Fæces* by not being discharged in Time produce cholick Pains, and an ill Stench in the Stomach and Mouth. In their natural State they are somewhat soft, but cohering, the Colour brownish, of no great Stink, and almost equal to the Quantity taken in.

What is the Urine in its natural State, and what are the Consequences of holding it too long?

In a healthful State it is of a yellowish Colour, of a moderate Consistence, with, or without a Sediment, of a lightish Colour, and swimming equally. Its Quantity is in Proportion to the Liquids taken in. If it be kept longer than it ought, either by any Fault in the Kidneys or Liver, or because

it is not rightly seperated from the Blood, it produces Dropfies, Faintings, ill Tafts and the Palfy.

What Injuries arife from an Obstruction of Perfpiration? And how is it made, and in what Quantity?

Unless infenfible Perfpiration be right, the Skin grows foul, and (as after the Measles frequently) arife Scabs, Dropfies, and Feavers. It is made through the Pores of the Skin, and through the Mouth. It appears how much we wafte this way continually from our Breath, which in Winter Time condenses in its *Exit*; and alfo by its gathering upon a Glafs, where it condenses into Drops; as alfo if we touch any bright polished Merral with a Finger never fo fhort a Time, it immediately difcovers a Moisture upon it; which as it is in fo fhort a Time, how much must we fuppose to evaporate from all the Parts of the Body in a whole Day? But it does not appear to be fo much as *Sanctorius* has asserted from his Statical Experiments; for he affigns the Quantity perfpired equal to the Quantities of all the other Evacuations together. *N. B.* For if the Meat and Drink taken in one Day weighs eight Pound, he affirms, that five Pounds fly off infenfibly.

So he fays, that the Urine difcharged in one Night is about eight Ounces, the Excrements of the Guts four Ounces; fo that a Person evacuates in one Day altogether, as much as is difcharged by Stool only in fifteen Days.

Who are they who have the Menfes? At what Period? How much, and how long? And what happens upon too little, or too great an Evacuation?

The

The *Menses* flow in Women ; they begin about the fourteenth Year, and continue until the fiftieth, unless in that Time they are with Child, and suck, for then they cease.

They flow more or less every Month, between the two and twentieth and the thirtieth Day ; their Quantity is in Proportion to the Heat and Quantity of Blood ; so that no certain Quantity can be determined, for in some it is large, in others small.

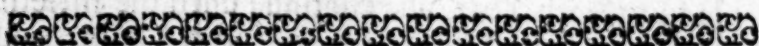
In like manner, they are not the same Time flowing in all, in some they are but two Days, in others three or four ; and again in some they flow six or eight Days.

When they flow too much, they occasion Weakness, Faintings, Wakings, &c.

Where they are obstructed, arise hysterical Disorders, a Difficulty of Breathing, Loss of Colour and Appetite, &c.

What are the Consequences of moderate or immoderate Coition ? And to whom is it most agreeable, and when ?

It agrees best with a full and Sanguine Habit of Body ; and in the Morning after Sleep it is healthful ; but immoderately used it weakens the Nerves and the Head, and emaciates the whole Body ; it wastes the Spirits, and strangely shortens Life. In sanguine Constitutions, after Digestion, and a Distribution of the Nourishment, the Seed is most abounding and perfect.



C H A P. VII.

Of the Affections of the Mind.

WHAT do you understand by the Affections of the Mind, why are they necessary, and to whom most agreeable?

Those Impressions, or Motions of the Mind thence arising, which we call the Affections or Passions, are many; which are always certainly attended both with some Alteration of the Spirits in the Brain, and of the Blood in its Motion, because the Mind is more concerned in them than in common Sensation, but it is necessary for the Preservation of Health, that sometimes they should affect more strongly, and at others not so much. For it is necessary, that the Blood should not always move just in the same manner, but sometimes quicker, and at others slower, both that the Spirits and Heat might the better thereby be preserved, or restored, or rendered brisker; and also that such as are used to such Changes might not sustain such Injuries upon a casual Acceleration or Retardation of the Blood and Spirits.

But all Affections are not equally good for every Constitution; for Joy is very helpful to melancholly Persons, to whom Fear and Sorrow are hurtful.

So

So to phlegmatick Persons for the same Reason Anger is good, as it raises their languishing Heat, but to chollerick Constitutions it is injurious.

Whence arise the Affections of the Mind ?

They arise chiefly from the Apprehension of some Good or Evil, present or future, by Means of which the Influx of Spirits from the Brain, to the Nerves, and the Motion of the Blood and other Parts, are altered ; as hath been above explained concerning the Spirits in the *Physiology*.

Which are the Principal Passions ?

Joy, Sorrow, Anger, Love, Hate, Envy, Hope and Despair.

What is Joy, and what Effects does it produce in our Bodies ?

It is that Satisfaction which is obtained upon the Possession of some Good. This chiefly conduces to Health ; especially if it be moderate, as thereby the Spirits with a pleased Mind shoot into all the Nerves, especially those of the Heart, and such as compass the Vessels ; by which Means it is that the Blood is carried over all the Body with a pleasing Motion, and all the Parts leap as it were from that agreeable Warmth which is spread thro' them.

But too much Joy is hurtful, yea, sometimes it kills, by the Spirits rushing into the Fibres of the Heart too fast ; for if the Heart continues too long contracted, it cannot admit the refluent Blood into the Place of that which is just thrown out, and so the Heat is lessened, and the Blood which waits for Entrance, coagulates.

Or

Or when the reflux Blood rushes into the Ventricles of the Heart, with too great a Force, or Quantity, or is rarefied too much, and thereby dilates them beyond Measure, it will then hinder the Influx of Spirits into the Nerves, which constrict it, and so hinder it from throwing the Blood out again.

This Definition comprehends not only the proper Advantages of Joy, but also the Good or Evil of the contrary, as they approach nearer to either State; nor is it repugnant that a Person should rejoice at the Hopes of a future Good; for such Belief is equivalent to a present Possession.

What is Sorrow?

It is an Uneasiness at some Evil under which we labour. In Sorrow the Spirits move but faintly both in the Brain and Nerves, by which Means they flow but languidly into the Nerves of the Heart, and are not able to constrict it sufficiently for the Blood's due Expulsion.

Hence further from the Blood's stagnating, or at least moving more heavily about the Heart, proceeds a Heaving about the Breast, Suffocation and Death, from the Blood's stagnating in the Vessels. Hence a lesser Pulse, Cold and Paleness in the Body, especially in the Face, and other Parts remote from the Heart, a Sinking of the Eyes, and a Loss of Vivacity, &c.

What is Anger?

It is a Desire of Revenge, upon the Apprehension of some Injury done.

In Anger the Spirits are rapidly moved in the Brain, and exploded from thence into the Nerves.

Hence

Hence the Eyes sparkle, and are as it were on Fire, the Forehead wrinkles, and the Pulse is quicker and stronger; some in the beginning of this Passion turn pale, are cold, and quake; such are the worst in their Rage, because they are afraid they cannot be revenged, or because they fear some Mischiefs attending upon their Revenge. But when such once come to their Revenge, the paler and colder they were before, they are then the more enflamed. But some cry, when they cannot sufficiently revenge themselves, either because their Passion constricts the Orrifices of the Glands, and so keeping in the Vapours, which were wont to transpire, condenses them; or because the Blood flowing more rapidly into the lachrymal Glands, separates a larger Quantity of *Serum* into the lachrymal Tubes, as it passes by them.

What is Love?

Love is the Desire of the Object beloved, as good and convenient.

In Love, both the Blood and Spirits, as well as without as within the Brain, are pleasantly moved, the Body grows gradually warmer, the Pulse something quicker and livelier, and now and then something unequal, by Means of the unsteady Influx of Spirits upon different Thoughts; whence also arises that rolling of the Eyes, and Variety of their Motion, where the Signs of Love may in them be discovered.

What is Hatred?

An Aversion to a Person or Thing, which we esteem hurtful and injurious to us.

What

What is Envy?

It is an Uneasiness at anothers Good, or a Joy upon another's Misfortunes.

It has the same Effects upon the Body, as Sorrow or Joy.

What is Fear?

Fear is a Dejection of the Mind upon the Apprehensions of immanent Evil; herein the Blood circulates very interruptedly, because the animal Spirits as it were stop, or make a Stand in the Brain, whence the Pulse is immediately flow, there is a Trembling of the Limbs, Cold, cold Sweat, Paleness, and an Innability to move; and so much, that sometimes Death ensues.

What is Shame?

Shame is an Apprehension or Sense of some Disgrace.

The Spirits in this flow very unequally into the Nerves, for sometimes they are as it were fixed in the Head, and then again they hurry out at once, whence the Countenance now looks pale, and then blushing.

The Heart and Brain are certainly much affected by Shame; for the Heart may sometimes be too long detained in its State of Constriction; or not constricted enough to carry on the Circulation, whence often Death ensues.

What is Hope?

Hope is the Expectation of a future Good, as something that is difficult, though possible to be obtained.

Hence both in the Brain and out of it there is a pleasant Flux of Spirits.

What

What is Despair, and how does that affect us?

Despair is an Affection arising from the Apprehension of some Good, and the Impossibility of obtaining it.

Here the Spirits are as it were imprisoned in the Brain, so that they do not by turns constrict the Heart, as they ought, but the Blood in a manner stagnating in it and the neighbouring Vessels, produces a Sense of Straitness, and a Kind of Punction.

Do not the Affections of the Mind very much act upon the Brain, the Motion of the Spirits, and the Motion of the Heart?

It certainly appears from what has been already said, that thereby the Brain and Flux of animal Spirits are much affected, but most of all the Motion of the Heart, which is made by their Influx, and the Circulation of the Blood.

Why is it that the Soul does not, or very little at most, govern those Affections?

Because, as it has been already said, they chiefly depend upon the Motion of the Heart and Blood, which depends upon the Influx of animal Spirits from the Brain chiefly into the *Par Vagum*, which the Soul has not an Influence over, but is involuntary, as has been above shown. Yet so much it is, that it occasions some light Commotions of Spirits in the Brain, and changes the Motion of the Heart, partly because the Passages of those Nerves are opener, and their original Branches more numerous, and partly also because there is a mutual Transmission and Communion of Spirits between the Brain and *Cerebellum*,
for

for the the animal Spirits being put in Motion in the Brain, those in the *Cerebellum* are presently stirred up, and thrust forward into the *Par Vagum*, and hence is the Reason why in Love, Sorrow, and other Affections of the like kind, the Spirits are thrown out in greater Plenty from the Brain, into the *Par Vagum*, and other Nerves serving to some of the natural Functions.

In Hatred the Soul restrains them in the Brain; for while the Soul loves, it joins with living Objects, or covets to dwell upon the *Idea* of the Thing beloved, from whence arise joyous and calm Thoughts; and it draws forth the Spirits to preserve the *Ideas*, and form new ones of the said Object; in the picturing of which the Soul is wonderfully moved by them; from which it further happens that the animal Spirits moved in the Brain, successively supply them to the *Cerebellum*, and thence press them forward into the *Par Vagum*, whence all the natural Actions are quickned. But in Hatred, when the Soul avoids the *Idea* of an Object, the Spirits are more sparingly thrust forward from the Brain into the *Cerebellum*, and thence into the Nerves, upon which such Changes happen in the Body as are contrary to those which follow upon Love.

How are the Spirits disturbed?

The Motion of the Spirits in the Brain are disturbed both by inward and outward Sensation, which when they are strong make more lively Impressions upon the Soul, and thereby of the Object in the Brain; (whether it be from the pure Notice of the Soul, which happens without the Assistance of Spirits, and consequently comes not under

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der a Phyfician's Enquiry, or is fubject to the Senses Notice, I do not enquire.)

For as foon as the Soul is apprehenfive of any Good or Evil, to follow this or that Action, immediately the Imagination is encreased by a greater Influx of Spirits, whereby it makes fuch Discoveries as either confirms its firft Notices, or forms new ones, and confirms the Certainty of the enfuing Good or Evil; by which the Variety of Motion of the Animal Spirits in the Brain is alfo communicated to the natural Spirits in the *Cerebellum*: In which Changes the Diverfity of the external Object does much; from which different Paflions arife; notwithstanding which at different Times, different Operations may be produced in the fame Subject, and from the fame Object.

Are not feveral other Affections reducible hereto?

Yes many, which produce the fame Effects in the Body, and which depend upon the fame Reafons, fuch is Ill-Will, which is a certain Averfion, or Alienation of one from another: And Pity, which is a Sorrow for another's Misfortune. He that requires more herein, let him have Recourfe to Phyficks.

How do the Paflions of the Mind differ from one another?

They are not really to be diftinguifhed, either from one another, or from other Sensations, for in Strictnefs it is the Soul which defires any Thing as a Good, or avoids it as an Evil; but they only differ according to the greater Influx of Spirits in one, and a leffer and flowier Motion of them in the other.

But

But from Sensation, with regard to the Quantity of Spirits, and the Changes made upon the Blood.

Cannot also the Passions of the Mind be termed external Actions?

Although the Passions of the Mind are internal animal Actions, yet sometimes they may be reckoned as external Actions, as therein the Mind is influenced by external Objects.

The End of the Hugienical Part.

THE





THE
GROUNDS
OF
PHYSICK.

PATHOLOGY.

Part the Third.

CHAP. I.

Of Things contrary to Nature.



WHAT are the Things contrary to Nature?

They are such Things as are destructive to the Constitution of a living Body.

How many are reckoned contrary to Nature as Generals?

rals, under which all others may be included?

They are three; a Disease, the Cause of a Disease, and the Symptoms of a Disease.

Under which all other Things contrary to Nature may be reckon'd.

Do not Contraries opposed to each other, help to illustrate them?

Yes, very much.

Would it not therefore be more to your Purpose to mention some of those Things which are agreeable to Nature, before you treat of what is contrary to it?

You say well, for the essential Difference of a Disease arises from thence, and so Things contrary to Nature, and agreeable to Nature will mutually illustrate one another. Therefore I say that Things agreeable to Nature are three (as the Number of what is contrary to Nature is the same) Health, the Cause of Health, and the Effects of Health.

What is Health?

It is that Constitution of a living Body which is agreeable to Nature, and by which all the Actions are duly performed.

Ought not all the Actions to be rightly performed?

As a Person is said to be in Health, they ought all to be rightly performed, and if there be the least Defect, that Person then ceases to be well.

For Health is the Good of every Constitution, and it is so from a perfect Cause, but it is bad upon every Defect.

What

What do you here understand by the Constitution?

The Constitution is, what results from a due Temper, Conformation, and Agreement of all the Parts of the Body, by which we are enabled rightly to perform all our Actions.

It cannot be taken for the Union of the Soul with the Body, for that is in such as are diseased, where the Actions cannot be rightly performed.

What do you mean by the Actions being rightly performed?

It is a Power of performing such Actions as are *convenient* to the natural State, upon Choice, but not *convenient* to every thing of a universal Nature, whence according to the Constitution of the Stomach or Eye of an old Person, although it digests slowly, or sees dimly, yet with respect to old Age there may be Health; but it cannot be so with Youth, for here it is indeed no otherwise than as the natural State of Old Age does require and admit of.

What is the Subject of Health?

A Living Body, and its Parts, as well solid as fluid.

Does not Health consist in a certain Mean which is not simple and permanent?

Health does consist in a certain Moderation, or Mean, which notwithstanding is not absolutely limited and indivisible, but admits of Latitude and Difference. For every particular Constitution has its *Medium*, according to which its Health is to be estimated; so the Health of a phlegmatick Person is of one Kind, of a chollerick Person a-

nother ; one sort in Youth, and another in Age ; as there are various Differences of Tempers and Constitutions, and different Regards of Health in this or that Person.

In like manner the Health of a familiar Part is one Thing, as not suitable to an Organical, and that of an organical Part another, as not agreeing to that of a familiar Part ; for the first requires a due Temperament and Agreement of Particulars ; but the latter only a due Conformation, that is, a just Seize, Number, Figure, and Situation, and moreover, a due Proportion to one another.

Lastly, The Health of the Whole is different from that of a Part ; for more is required for the former than the latter ; and a Man may be under Disorder in the Whole, but yet well in some particular Parts.

What is therefore required to the Health of the whole ?

A due Temper of all the Parts, due Conformation, and due Agreement, for these being enjoy'd, all the Actions will be rightly performed.

From what has been said, it appears, that a healthful Body, and a Body well tempered, or of a just Conformation, are not the same, as there is more required to Health, than to a good Temper only, or a good Conformation ; and a Man may be in good Temper, and not in Health, that is if there be not a due Conformation, but some Error in the Magnitude, or Number, Figure, or Situation of the particular Parts.

In

In like manner, a Person may, on the other side, be of a good Conformation, but not of a good Temperament.

What do you understand by the Cause of Health?

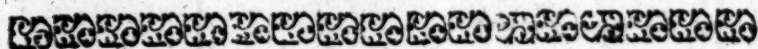
The Cause of Health from what has been said, appears to be a good Temperament of the first Qualities, and a due Conformation, and Agreement of all the Parts of the Body.

What do you understand by the Consequences of Health, or its Effects?

The Consequences are Action, Excretion and Retention, and the simple Operations of the whole in due Order.

L 3

C H A P.



C H A P. II.

Of a Disease.

WHAT is a Disease?

Disease is the preternatural Constitution of a living Body, in which all the Actions cannot be regularly performed.

What do you understand by the Constitution?

In the same Sense as we said before of the Constitution in a healthful State, so on the Reverse, here is something to be understood, resulting from an *undue* Temper, Conformation, and Agreement of Parts, by which some Action is amiss, or ill performed at least; and by which we are rendered unfit for the Performance of those Actions which are suitable to our natural State.

Does a Disease suppose a Fault in all the Actions?

It is said, not by which all, but some of the Actions are ill performed, for to a Disease it is not necessary that all the Actions should be out of order, but one only is sufficient; for every Defect is bad.

What signifies the Preternatural, in the Definition?

It excludes the Constitution of old Persons and Infants, for they do not perform all the Actions right,

right, because indeed it is according to the Course of Nature, at such Ages:

What is the Subject of a Disease?

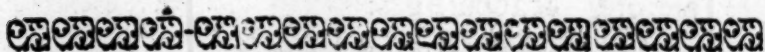
A living Body; its solid and fluid Parts, those particularly which are out of Order.

Is not the Soul also the Subject of Diseases?

(N. B.) The Rational Soul was created perfect, and if it undergoes any Distempers, it is from the Fault of the Body, or Organs, in which it performs its Operations, as long as it is joined to the Body.

Note.

I do not here take Notice of Diseases from an undue Temperament, or from an undue Conformation, and from a Solution of Unity, because they properly belong to Chyrurgery, where it is professedly discoursed concerning Wounds, Ulcers, Fractures, and Fissures,



C H A P. III.

Of Universal and Particular Diseases.

HOW are Diseases divided, according to the Part affected?

A universal Disease is one Thing, and a particular Disease another; a proper Disease one thing, and what is common another; the Difference is also the same between internal and external.

What is a Universal Disease?

That which affects the whole Body, as a Fever, Cachexy, Anasarca, &c.

Note, It is not required to a Universal Disease, that all the Actions, that is natural and animal, should be in Disorder, for it is not easy to hurt one without injuring the other, because they mutually depend upon one another.

What is a particular Disease?

That which affects only one Part, as a Hydrocephalus, Pleurisy, &c.

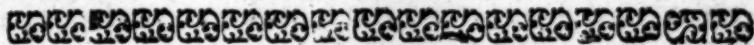
What is an external Disease?

What affects the external Parts.

What is an internal Disease?

That which affects only the internal Parts, as the Stone, Dysentery, &c.

C H A P.



CHAP. IV.

Of Contageous Diseases.

WHAT is a Contageous Disease?

That which by Contagion is propogated from one Body to another, as the Plague, Leprosy, Pox, Consumption, Canine Madness, Itch, &c.

What is a Contagion?

An infectious *Effluvium* or Steam, arising from a Diseased Body; distinct from Seed, or the Aliment and Milk of the *Fetus*, by which also a Disease may be carried from one Body to another.

Observation.

Contagion as a kind of a Seminary or Nursery of Diseases, and is such as ought under a very small Bulk to contain its whole Energy and Substance; and from a defect herein it happens that a Disease proves not Contageous, notwithstanding which all Diseases send out some kind of *Effluvia*.

Why in the Definition is it said, distinct from Seed? and why from a distempered Body?

It is said to be distinct from Seed, because a Disease propogated in the first Conformation from
thence

thence is called *Hereditary*, as also that which is communicated to the *Fetus* with the Nourishment; and again what the Child receives from its Milk, is termed *Connutritious*.

How is a Disease said to be Contagious from any Contagion?

Not because it is first produced from a Contagion, (for a sudden Plague is a contagious Distemper, yet not produced as from a Contagion) but because it is such as communicates the Contagion, and carries it from one Body to another.

Is a Contagion the same in all as a Defilement?

It is not so in the general, for this is of a larger Extent, for there are Defilements, or Infections, which are not Contagious; as some Poisons from Animals, and Plants, or from poisonous Caverns; or from Dead Bodies, and other Putrefactions, which are not properly Contagious, especially when they do not arise from diseased Bodies, nor are produced in Persons by the like Disease.

Is all Contagion from Putrefaction?

It is often so, but not always, for some things, without Putrefaction, may several ways be so exalted and figured in the Body, as to acquire the Force of a Contagion. The Nature of a pestilential Contagion, is known from its Effects to consist in a certain Poignancy (*N. B.*) as from something of the Figure of cutting Instruments, and why may not then such like Figures be produced from the Particles of our Bodies upon Putrefaction.

Cannot a Contagion be produced in a Living Body?

Yes, from the Blood, *Semen*, or other Humours; from whence it appears how different it is, nay, almost impossible to say whether a Disease is contagious

tagious from any external Contagion here or there, or rather whether it be not produced from within.

Does not a Contagion proceed out of a Body several ways, and also received so?

A Contagion proceeds from a distempered Body several ways, as by the Pores of the Skin, with the Breath, Spittle, Fæces, Urine, Matter, &c.

But it insinuates it self into a Body, either with the inspired Air, or by the Pores of the Skin; and that again after divers ways, as the Contagion may be such as not to be communicated but by immediate Contact, as that in canine Madness; others are propagated, by the Cloaths, &c. as in the Itch, and Leprosy; again another sort is propagated to a great distance in the Air, as the Plague, &c.

Is the Immission of the contagious Particles into the Body sufficient to bring them into Action, or is any thing further required?

An Agent does not act equally upon any Subject; but upon that only as is disposed to be influenced by it, there is therefore required in a Body a peculiar Disposition, that the Contagion conveniently lodge in it, and may be encouraged; and such a one, that without it, it often happens that one Man may transfer the Contagion to another, and not be seized with the same Disease himself, but discharge it through the Habit of the Body, by Sweats, Urine, Spittle, &c. Sometimes also a Contagion will lurk sometimes in the Blood without discovering any disorder, because the contagious Miasms are such, as are fitted only to affect the more dense Parts, because they quickly fly away by the Pores; some again are suited only
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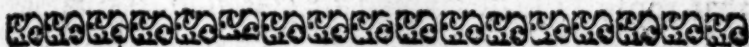
to the tenderer Parts, because they are not able to insinuate themselves into such as are more Solid.

But where there is a suitable Disposition in the Constitution, that is, such a Conformity of Bulk and Figure, &c. then the Contagion insinuates its self through the Pores of the Skin into the Blood and other Parts of the Body, and there acts its Part, and generates in those Parts, Corpuscles of its own Nature; and from hence is to be had the Reason, why the Contagion of a Consumption, for Example, should most readily be communicated from Brother to Brother, and those of the same Blood, &c. and why rather from the Lungs to the Lungs than to other Parts of different Conformations; or why it sooner Affects by its corrosive Qualities in others the Skin, or Liver, than the Lungs; for the Pores of those in Affinity are more similar to one another, as also the Particles by them produced; and the same is to be said of the similar Parts in different Persons, as for Example, of the Lungs of *Peter* and of the Lungs of *Paul*, whence the Miasms arising from a consumptive Person, by the similitude of Figures and Pores produce Consumptions in others, and from one in a Dysentery, a Dysentery, &c.

Note, Hence gather that one Body may affect many others, and yet remain equally affected it self as before.

What is a Disease that is not Contagious?

That which is not propagated by Contagion from one Body to another, as a Wound, or Fainting.



CHAP. V.

Of a Pandemical, Epidemical, Endemical Distemper, and of Sporadick Diseases.

WHAT are Distempers which are common or Pandemical?

They are sometimes Diseases of the same Kind.	}	They invade several Countries, at the same Time.
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What is an Epidemical Disease?	}	It arises from a common Cause, and invades,	}	a great many in the same Place and at the same Time
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What is an Endemical Disease?

It is the common Disease of a Country arising from some common Cause.	}	As the Scurvy in Hol- land, the Rickets in England, the Plica in Poland.
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What are Sporadical Diseases?

When Diseases of a different kind, invade the same Country at the same Time.	}	As the Pleurisy, and Opthalmy.
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That

That these things may the better appear, I say that those Diseases which are common to Regions are called *Pandemical*; and they are Diseases of the same sort which sease a great many at the same Time in several Places.

Of *Pandemical*, there are *Epidemical* and *Endemical*.

An *Epidemical* Disease is that which arises from some common Cause, is peculiar to no particular Country, and invades a great many in the same Place, at the same Time, as the Plague, Quinsy, *Epidemical* Pleurisy, &c.

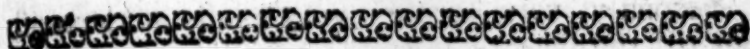
Observe, it is said peculiar to no particular Country, to exclude those which are *Endemical*.

Observe secondly, that it is said, from some common Cause, as from the Positions of the Heavens, Constitution of the Air, and from an unwholesome Diet.

An *Endemical* Disease, arises from some common Cause, limited to a peculiar Country, as the Scurvy to *Holland*, the Pox to *India*, the Quinsy amongst the Alps, the Evil in *Spain*, &c.

The common Cause of this is the Air, Situation, Water, and way of Living peculiar to this or that Country.

Sporadick Diseases are dispersed abroad, of different kinds, and more than one seases a Person in the same Place at the same Time; as the Pleurisy and an Opthalmy, which although they are both Inflammations, yet by Physitians, as they are in different Parts, and attended by different Symptoms, they are reckoned of different Kinds.



C H A P. VI.

Of a Disease, short or long, accute or not accute.

FROM the Continuance, a Disease is said to be short or long.

What is a short Disease?

Which soon comes to an End; as an *Ephemera*, or a burning Feaver.

What is a long Disease?

That which is of a long continuance, as an intermitting Quartan, a Dropsy, Palsy, Epilepsy, that is not speaking of the Fit only, but the continuance of their returns, from which in this as well as in all other Diseases their length is determined.

N. B. From the Continuance and Height, it is said to be Accute or not Accute.

What is an accute Disease?

Which in a short time comes to an End, and is attended with Danger; and therefore is a Species of short Diseases: As indeed every accute Disease is short, but not *e. contra*; for every short one is not Accute, as an *Ephemera* is short, but without Danger.

How many sorts of accute Diseases are there?

Four kinds, as they differ in degree and accuteness.

The first is extremely accute, which terminates the

the third, and at furthest the fourth day, as a severe Apoplexy, or a pestilential Feaver.

Secondly, very Accute, which lasts at the most but till the seventh day, as a burning Feaver.

Thirdly, indifferently Accute, which will last to the twenty'th day, as a continued burning Feaver.

Fourthly, but a little Accute, which lasts to the forty'th day.

But the two last are hardly to be called Accute, because they are not short.

What is a Disease that is not Accute?

That which does not come quickly and with hazard to a Conclusion: Such is every one that is long and is without danger.

C H A P.

C H A P. VII.

Of a mild and a malignant Disease.

WHAT is a mild Disease?

That which is attended with its ordinary Symptomes, as a Tertian, which is attended with its usual Symptomes.

What is a Malignant Disease?

That which is attended with Symptomes worse than usual.

What is the Mos Morbi?

By it is meant that state in which a Disease leaves the Body, by the Symptomes which have been common or not common thereto, and upon which a Disease is said to be *boni* or *mali Moris*.

Whence proceeds a bad Issue of a Disease?

From its being attended with some unaccustomed vitiated Matter, that is, That the morbid Matter has been too adust, or too much putrified, &c. but this is not to be charged upon the Body affected, although from its Weakness, or Disposition, frequently Symptomes arise worse than usual, as from a gentle Feaver we sometimes see Syncope's and greivous Vomitings; and indeed so far it may be termed a high Disease, but comparatively.

How does a malignant Disease differ from a contagious Disease?

I say that they mutually exceed one another;

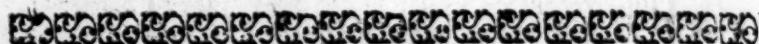
M

for

for the Plague is both malignant and contagious; a Tertian, as it has Symptomes much worse than what are peculiar to it may be malignant but not contagious.

Is not every contagious Disease malignant?

By no means; for a Disease may be contagious and not malignant; as some kinds of the Itch.



C H A P. VIII.

Of great and small Diseases.

Observe; A Disease is said to be great or little according to its Height.

Is not the Height of a Distemper to be considered in two Respects?

Yes, first of all with Regard to the Person afflicted, and with this view a Distemper may be said to be great that is in it self but small, as a Feaver in it self not great, or less than another Distemper, yet if it be considered as it affects a Child or a weaker Person it may be said to be strong.

Secondly, it may be said to be great, *Secundum se.*

What is a Disease great in self?

That which is strictly great, is such as waists the strength and endangers the Patient.

From

From what Grounds does a Disease prove great?

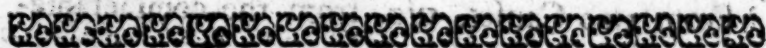
From two Causes, viz. from the considerable-
ness and use of the Parts affected, as if it be the
Brain, Heart, or Stomach, &c. or where a Dis-
ease is intensively or extensively great: As if it
be an Inflammation (which in it self is not a great
Disease) in an integral Part, as a Leg, or Arm;
or if it be in the Hand only, or a part of it, so
it be intense enough to threaten a Gangrene.

Is a great Disease the same as a vehement one?

By no means, for the last has something in it
of a much higher Nature, than what is merely
great.

What is a Disease, in its self, small?

That which is not apt to pull down the strength,
and threaten Death, as an Ephemeral Feaver, or
a *Tenesmus*.



C H A P. IX.

Of a primary Disease, or idiopathical; and of secondary or sympathetical Diseases.

WHAT is a primary or idiopathical Disease? That which is properly a Disease *per se*, and has no dependance upon another, and therefore requires a peculiar method of Cure; as an obstruction of the Kidneys by the Stone.

What is a secondary Disease, or that which is by Sympathy?

That which depends upon some other, and therefore does not require a particular Cure; as a *Delirium* upon an Inflammation of the *Diaphragm*, for the *Delirium* arises from that Inflammation, and therefore does not require a particular Cure, because upon a removal of the other that will also cease.

What do you understand by Sympathy?

That Consent by which the Parts affect and are affected by one another; it is nothing else than a *Compassion* of the Parts with one another.

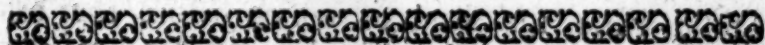
What, and of how many Parts is this Compassion?

It is an Affection of the same, or of a different kind.

Of the same, when a Part is corrupted by another corrupted Part.

Of a different, when a Part is convulsed by the Puncture of a Nerve.

C H A P.



C H A P. X.

Of an Hereditary Disease.

WHAT is an Hereditary Disease?

That which is propagated to the Child by the Seed or Nourishment in the Womb, from a Parent obnoxious to the same Distemper.

Why in the Definition is it said Obnoxious?

To say that a Disease is Hereditary, it is not necessary that the Parents should actually be infected with it, or that he ever had or ever must have it, for by a peculiar way of Living, such Diseases may be kept under, and sometimes destroyed; but it is sufficient that the Parents are obnoxious to Diseases of such a kind; that is, That they are desposed thereto, either from themselves or their Ancestors; upon which Grounds also a Posterity may fall into Diseases unknown to their Parents.

Is it necessary to an Hereditary Disease that it shew it self at its first Rise?

No, for sometimes it first appears when Persons are full grown, because that morbid Disposition impressed upon the Infant might then first be discovered and brought into Action; either from some change in the way of Living, or in the Temperament; or from some external Causes,

or lastly from some Disposition of the Blood and solid Parts, for want of which before that original defilement might be kept under, or concealed,

So we see an Hereditary Consumption to discover it self first at the twenty fourth, thirty'th, or thirty sixth Year, so also we find the Small Pox, arising from the Impurity of maternal Blood, not to appear in the Offspring until the eighth, tenth, twelveth Year or more; and so of several others.

Can you further explain where this original Taint lies hid so long, how it is stirred up, what it is in it self, and how it is impressed upon the Child?

To the first I Answer, That it may continue so long concealed in the solid Parts, or mixed with the Blood, or wrapped up in its more flexile Parts; until by the Bloods greater Effervescency it is exalted, and stirred up in those Fastnesses in which it has so long been hid, and washed out and taken up again by that Mass; or if it lies concealed before in it, by its Effervescency or greater Desolution it is set loose, and thrown upon any Part that is fit for its Reception.

To the second I Answer, That this Infection is some Corpuscle, or Corpuscles, which arises from some Disease of the Parent, or from some of its distempered Parts at least; and is by the Blood thrown upon the Testicles, or carried to the Womb with the Chyle or Blood. In this as in a seed is contained the whole essence of the Distemper, and by reason of its figuration, when put into Motion, of prodigious Activity; as we have
before

before said of a Contagion, from which it differs no further than in the concurrent Symptoms of the Diseases which it produces.

To the third, That first of all this is carried to the *Testes* of both Sexes with the Blood, and by reason of its Smallness and Activity easily insinuates it self into the female Egg or Seed, as into the seminal Vessels of the Male, and thereby infecting the Seed, and with it going into the Formation of the *Fetus*, it there leaves its vitious Impressions. Nor does it object any thing that in speaking of the Seed, I speak of it as going into the Formation of the *Fetus*; for it is not so much meant of its thicker Part, as of a certain fine *Aura*, or Spirit which arises from it, and concurs therein, and enters the Ovaries, or Female *Testes*. This paternal Taint or *Semenarium* by its extraordinary subtilty easily joyns with the seminal Spirit, or easily at least raises it self up with that to the Ovaries, whence the *Fetus* is generated.

But that this Hereditary defilement may be made upon the *Fetus* by the maternal Nourishment or Blood, is not to be called in Question.

In like manner the Chyle, with which the *Fetus* is nourished, is made in the Mother, and carried through her Vessels. But the Blood goes into the nourishment of the Womb, which although it does not nourish the *Fetus*, yet by its continual Vapours into the *Placenta* and Cavity of the Womb, it may easily give a Taint to the Chyle,

What are the Diseases which are generally thought to be Hereditary, although it cannot be positively affirmed that this or that particularly is so?

They are a great many, but these are the chief: The Gout, Stone, Apoplexy, Melancholly, and Consumption; though it is very uncertain, when we see any one labouring with either of those Diseases, whether it was derived from the Parents because it may arise from the Patients own fault; and therefore at the most we have but a bare suspicion, that because the Parents had the same Distemper, it is in any particular Person Hereditary.

What Diseases are those which are not Hereditary?

Those which are not transfused to Posterity by the Seed, or maternal Nourishment of Parents obnoxious to the same, as a Wound.

CHAP. XI.

*Of the Time, Paroxysm, Period, Type, and
Revival of a Disease.*

WHAT is the Time of a Disease?

It is that Time in which some remarkable Alteration happens. Such Alteration is according to the different Activity of the morbid Matter; and on the other side, is further known from the Intension or Remission of the Symptoms.

What is the Time of a whole Disease, and how is it distinguished?

It is that which takes in the whole Course of the Disease, and is fourfold, viz. the Beginning, Encrease, State and Declension. The Beginning of every Disease is, when it begins first of all to act, and whilst the vital Offices are not as yet much injured. The Encrease, when the Functions are very much, but yet not in the greatest Degree disordered. The State is its Height, when the Functions are most out of Order. The Declension is, when the Disease ceases to disturb the vital Actions.

Is not the Beginning of a Disease taken in a different Sense by the Physician, from the common People?

The

The common People call that the *Beginning*, wherein the Disease is first felt, but with us it is dividible into many Days, especially in long Distempers.

Are these four Stages observable in every Disease?

Yes, absolutely, whether they tend to Life, or Death, or are treated with Medicines, or not; But those Times are very unequal; because some Diseases sooner finish their whole Course, and consequently their Stages are shorter, especially if they be under good Management.

But vulgarly speaking concerning the Time of a Disease, that is, measuring it according to its wonted Duration, it may be said, that some Diseases, have not four Stages, for some are by proper Means quite cured in the very Beginning and Encrease of the Distempers, and others in the Encrease or Height.

Do Persons ever dye in the Declension of the Disease?

No, especially of the Disease of which that is a proper Declension, for the cause is then overcome or expelled; but a Person may indeed then dye of some other Disease falling in just at that Time, or from a Defect of some Necessaries to Life, as in old Persons.

What is the particular Time of a Disease?

That which takes in the Continuance of a Paroxysm.

What is a Paroxysm?

It is a periodical Attack or Aggravation of a Disease. So the Fit of a Tertian, is that Space in every third Day wherein the Fever rages; but that

that has truly its Beginning, Encrease, Height and Declension, according to the Condition of the Feaver.

What is the Period of a Disease ?

It is that Space of Time between the Beginning of the past Fit, and the Beginning of the next.

Whence a Period differs from a Paroxysm in this, that a Paroxysm is only a Part of a Period, or a particular Time comprehended in that. Those Diseases are said by Physicians to keep their Periods, which return at setteld Times, *v. g.* as a quotidian, tertian, or quartan Feaver.

And according to this, we say that a Disease keeps its Period, either tertian, quartan, &c.

What is the Time of a Disease ? Has every Disease its Period, or Type ?

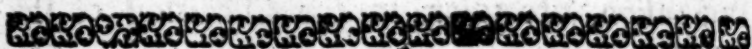
A Type is the Order of Intension or Remission in Diseases ; the Form or Manner of its Periods.

An Atrophy, or a Palsy have neither Period or Type, because they are continually the same.

What is the Revival of a Disease, and why does it return after a short Time ?

It is the Return of a Disease (before healed) in a little Time.

It is said *after a little Time*, because if any one should be seized with the same Disease a long Time after its Cure, it would be look'd upon to be new, and not a Revival of the same.



C H A P XII.

Of the Cause of a Disease, and their Kinds.

WHAT is the Cause of a Disease?

The Cause of a Disease amongst Physicians, is something preternatural.

How many Causes are there?

Many, but with Physicians they are but of three Kinds, 1. A Procatartick. 2. Antecedent. 3. Consequent.

What is a procatartick Cause, and of how many Kinds:

A procatartick Cause is manifest to every Body, That is, the Cause to which every Body in his Senses would impute the Disease. It is twofold, internal and external, or that which is brought about either in us, or without us.

The internal procatartick Causes, are all the Affections of the Mind, as Anger, Sadness, Grief, &c.

So the Vulgar impute the Death or Sickness of such a particular Person to Excess either of Joy or Anger, when they see Death or Sickness immediately to follow those Passions.

The external procatartick Causes, are such as a Stone, a Sword, a Knife, a Club, the Air, Meat and Drink, &c. ill used.

What

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What is an antecedent Cause, and why in the Definition is it said, not manifest to every Person?

Because after it is removed, the Disease may not immediately cease. Such as from too much Blood, the Inflammation that is made by it in any particular Part, for when that Superplus is drawn off by Phlebotomy, the Inflammation will not suddenly be gone, for that will yet remain as long as the extravasated Blood, which is the containing Cause, remains in the Part.

Such is an over Quantity of Phlegm in the Stomach, which in various Respects produces Apoplexies, by getting into the Mass of Blood, and thereby to the Head. For that being removed, by a Vomit, yet those Parts which have lodged in the Passages of the Brain, may yet remain. *N. B.* Therefore the antecedent Cause is that which supplies the containing.

What is the containing Cause?

Is such that upon its Removal, the Disease ceases. Such is the extravasated Blood in an Inflammation.

Can the containing Cause be at the same Time procatartick or antecedent?

It may be the procatartick Cause, so a Thread binding an Artery, or a Piece of Bread too greedily swallowed, causes an organical Distemper, by destroying the Figure, for it is necessary that those Parts should be hollow, and this is evident to every one.

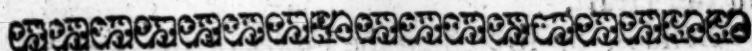
But yet the containing Cause cannot be the antecedent, especially at the same time, and of the same Disease; but the Cause which was just now the Antecedent may be the containing, and *e contra*; so any Part

Part of the Blood causing an Inflammation in the Hand is the antecedent Cause, that is, of that Inflammation, especially if with the rest it flows through the Legs, Head, and other Parts; but as it is thrown upon the inflamed Hand, and extravasated there, it is the containing Cause; and it may again be made the Antecedent, if from the affected Part it be again taken up by the Blood, and encreasing its Quantity, it should be again circulated with it as before.

Cannot there be more easy and plain Division of Causes given?

Causes are sufficiently and much plainer divided into external, or such as are without the Body, and internal, or such as are produced within the Body, as also into proximate and remote: Consult other Authors hereupon, as *Sennertus*, and the like.

C H A P.



C H A P. XIII.

Of a Plethora, Cacoehymy, and Flatus.

WHAT is a preternatural Humour ?

We adjourned the handling *p. n.* Humours in our *Physiology*, because that considers only things in a natural State, but here we consider *p. n.* things, and consequently a *p. n.* Humour, as the frequent Cause of a Disease. A preternatural Humour therefore is something that has Qualities injurious to us.

Of how many kinds is a p. n. Humour ?

As many as the natural.

What is a Plethora ?

A too great Fulness or Quantity of Blood, with a correspondent Proportion of other Humours.

Does that Division of a Plethora signify any thing, of Plethora ad Vasa, and a Plethora ad Vires ?

It is of no Use. It is called a *Plethora ad Vasa*, when the Vessels are too much distended ; and a *Plethora ad Vires*, when the Spirits are overwhelmed.

By what Means does too much Blood oppress the Spirits ?

Because when the Blood abounds in Quantity, it is too heavy, and flows sooner through the Heart ;

Heart; whence also it does not so well ferment in the Heart.

Besides, by stretching the Fibres of the Heart too much, by its Quantity, it weakens them, upon which it is thrown out but feebly, the Spirits are not duly made, or are too heavy, and so a Sluggishness ensues in all the Actions.

The former Division of a *Plethora* is of no Use, because every *Plethora ad Vasa*, is also so *ad Vires*, for the Vessels cannot be too much crouded, for there must be too great a Quantity of Blood in the Heart to whose Capacity they are proportioned, and so the Spirits will be oppressed; and on the other Hand the Quantity of Blood never lessens the Spirits, unless it exceeds, and then it will distend the Vessels, and such is a *Plethora ad Vasa*.

What is a Cacochymy?

It is some evil State of the Blood.

Whence does it arise?

Not so much from any bad Quality of its Ingredients, as from the ill Qualities of something distinct from it; for then the whole Mass could not be thought to have its requisite Quality or Temper, and upon that Account a Cacochymy is of several kinds, as there are several Humours in the Mass of Blood distinct from it which may some way or other be in Fault, either in Quality or Quantity, and sometimes the Blood it self.

What is a Flatus? From what is it generated? How disappears? And in what Parts do they most arise?

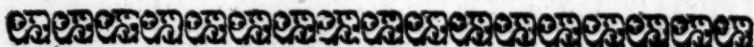
Flatus's, or Wind are reckoned amongst the preternatural Humours; they chiefly arise from the

the Food, and particularly the *Pituita* in the Guts, which upon their Fermentation with the Bile and pancreatick Juice, just as it happens upon the Fermentation of any other Liquids, they pass into gross and viscid Vapours, which are thrown about like rarefied Air, and stretch the Parts in which they are confined, until they again coalesce, or are dissipated, or some way or other evacuated.

Their Seat is chiefly in the Intestines, because there is the Matter which supplies them and the Cause whence they are produced, and because they are scarce ever without them.

N

CH A P.



C H A P. XIV.

Of a Symptome in general.

WHAT is a Symptome?

A Symptome is a *p. n.* Effect of a Disease, as Thirst in a Fever.

Ought a Symptome to follow a Disease as its Cause?

One Symptome may be also occasioned by another Symptome.

It also may be subsequent to the Cause of a Disease, but then it is not a true Symptome, but rather a Disease it self. So further it may be the Cause of a Disease and a Symptome both. Every Disease has its peculiar Symptomes.

What and whence are the Differences of Symptomes?

A true Symptome follows a Disease, as its Cause, and that is either proximate or remote. Whence there is a Symptome immediately subsequent to the Cause, as has been already said, and a Symptome not directly following it; that is, the Symptome of a Symptome, or a Symptome the immediate Effect of another; as a depraved Imagination, from the circular Motion of the Spirits in the Brain, which it self is the Symptome of an organical Distemper, occasioned by too great a Straitness of the optick Nerves, whereby the Spi-
rits

its flying back fall into such circular Motions. But a Symptome which is not truly so, may also be immediately subsequent to the Cause of a Disease; but it is indeed then rather a Coefficient with the Cause; so from a thing violently corrosive apply'd to the Flesh, there arises an Ulcer, Pain, and Itching, which are afterwards called the Sympntomes of the Cause: Hence an Effect is brought about by some Cause, but a Coeffect, is an Effect of the original Cause.

That I may, in the last Place answer to the fore-mentioned Decision.

I say, that a Symptome is divided into three general Kinds, *viz.* into a distemper'd Function; into a Fault of Excretion or Retention, and into a foreign or changed Quality in the Body.



C H A P. XV.

Of a Distemper'd Function.

WHAT is a distemper'd Function ?

That which is not as it ought to be.

How many Kinds are there ?

Three, as a Function may three ways be injured, by *Abolishment*, *Diminution*, and *Depravation*.

What is an abolished Function ?

That which can never be performed again, as Loss of Sight, by Blindness ; Loss of Motion, in an Apoplexy, &c.

What is a diminished Function ?

Which is less and weaker than natural, as a less Appetite in one that is sick.

Upon what Account is a Function said to be depraved ?

By its having received some peculiar Damage, whether it be that it is rendred thereby more languid or not.

Under which of these is reckoned Pain ?

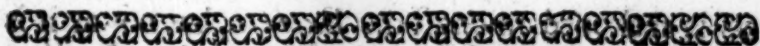
Under a depraved Function.

What is Pain ?

It is a troublesome Sensation, from something *p. n.* painfully affecting the Parts.

Several Objections may be here raised, concerning which consult other Authors.

C H A P.



CHAP. XV.

Of the Faults in Excretion and Retention.

What are the Faults of Excretion and Retention, and how are they here to be understood?

They are something preternatural in those Offices, arising from some Disease.

What is meant here by Excretion and how is it in Fault?

Whatsoever goes out of a human Body, that is, not only what is discharged from the Blood and Chyle in healthful Persons, but also all that which is excerted by such as are in Distempers. And this is in Fault either as to its whole Substance, or in its Quantity, Quality, or in the manner and time of its Excretion.

Of how many kinds are the Errors in Excretion and Retention? how can Excretion be in Fault as to the whole Matter discharged? and can you give Examples of the several Faults in Excretion?

The Faults herein are of five kinds; 1. From the whole Substance. 2. From the Quantity. 3. From the Quality. 4. From the Manner, and 5. From the Time of Excretion.

That is said to be wrong in its whole Substance, where it is in every respect preternatural; as the Stone, and Worms of the Intestines; consequently it is not rightly asserted by the Schools, *omne illud quod in corpore retinendum erat excretum substantia peccare*; For laudable Blood is not a *p. n.* Substance, yet its Excretion is faulty and symptomatical; as it follows some Disease from the breaking of the Vessels; and therefore the Blood it self by

us is reckoned amongst the *Excreta*, but not as it is in Fault in its Substance, but in Quantity, Quality, or in the Manner and Time of its Excretion.

Now as for Examples of all the Faults; first, there is that where in every respect the Matter excreted is preternatural, as the Stone, Worms, and Caruncles.

From the *Quantity*, as too much menstrual or hemorrhoidale Blood, or too little; too great a Discharge of Seed, as in a *Gonorrhæa*, or of Urine, as in a *Diabetes*.

From the *Quality*, as too fetid a Smell, or a *p. n.* Colour in the Sweat or Urine.

From the *Manner of Excretion*, as the Excretion of the Contents of the Guts by the Mouth, as in the Iliack Passion, or the Excretion of the *Menses* by the Lungs.

And lastly from the *Time of Excretion*, as too quick or too slow a Discharge of menstrual Blood, &c. which is the Consequence of some distempered Function, as will appear to every one upon Examination.

What is to be understood by a Symptomack Excretion? and that which is natural or Idiopathick?

A symptomack Excretion is such as happens from the Irritation of a Disease, as Sweat, Looseness or Vomiting, &c. without any Relief to the Patient, and sometimes to his Injury, the Cause still remaining behind; and *such Excretion is bad*.

Natural idiopathical Excretion happens when the morbidick Cause is subdued and prepared that it may be expelled by some proper Outlets to the great Relief of the Patient. The Stone as is before-laid, is an Excretion in every respect preternatural,

The End of the Pathological Part.

T H E

(183)



THE
GROUNDS
OF
PHYSICK.

Part the Fourth.

SEMEJOTICE.

CHAP. I.

*Of Physical Signs in general, and some of
their Kinds.*



*HAT is a Sign amongst Phy-
sicians ?*

A Sign is something ma-
nifest, by which we are
brought to the Knowledge
of what is more occult.

*What do you understand in
the definition by more occult?*

N 4

I mean,

I mean the particular Constitution of a Person.
How is a Sign divided?

Some Physicians make Divisions and Subdivisions, &c. and further require whether there be any such as a neutral Sign; but I shall only call those Signs which are of the greatest Moment and most necessary to be known in Practice. A Sign therefore is divided into Diagnostick and Prognostick.

What is a Diagnostick Sign?

Which shows something present.

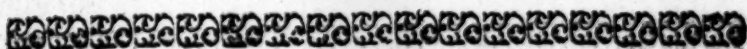
A Prognostick Sign, shews something future.

For what are commemorative, salubrious, insalubrious, separable and inseparable, proper, natural and preternatural Signs, &c. consult *Sennertus*.

Note.

A prudent Physician will take Care not to be too free in his Prognosticks, lest he gets disgrace, but it is much the best to conceal the Prognostick under a general Apprehension of Danger.

C H A P.



CHAP. II.

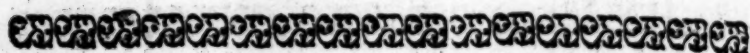
*Concerning the knowledge of a Disease from
Four Signs.*

FROM what Signs is a Disease known?

1. From things excreted, as a Disposition to the Stone from Gravel in the Urine.
2. From the Nature of the Part: The Belly in Pain from Worms.
3. From the Nature of Pain; as an Inflammation from a Throbbing Pulse.
4. From proper Accidents: A burning Feaver, from an intense Heat of the whole Body, joined with a blackness of the Tongue, and an insatiable Thirst.

From what does good or hurt, may likewise some knowledge be obtained,

CHAP.



C H A P. III.

Of the Knowledge of the Cause of a Disease.

FROM what Signs are the Cause of a Disease known?

1. From the Temperament. From Heat, the Cause is known to be of the same kind.

2. From the Colour of the Skin. From a yellow Complexion it may be known that Choller abounds.

3. From the Age. In Old Age that the Cause is from Cold; in Youth the contrary.

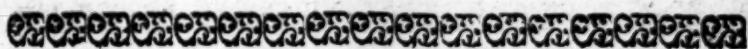
4. From the kinds of Pain. From a burning Pain we know that there is Choller in fault, from a wandring Pain, Wind.

5. From an evident Cause. From high and plentiful Eating with a seditary Life, it may be known that an over Quantity of Blood must be in Fault.

6. From what is Excreted. So from great discharges of Phlegm, it is known that Phlegm is the Cause.

7. From what does Good or Hurt. Thus when a cooling Medicine does good it is manifest that the Cause is from Heat; and so on the contrary.

C H A P.



C H A P. IV.

Of the Knowledge of the Part affected:

FROM what Signs is known the Part affected,
and give Examples of each?

1. From a distempered Function: The Ear is known to be affected from the loss of Hearing.

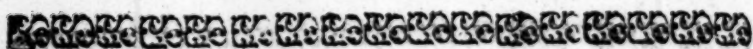
2. From the seat of the Disease. That the Spleen is disorder'd from a Tumor in the left Side.

3. From the kind of Pain, so a Membrane is known to be hurt from a throbbing Pain.

4. From proper Accidents. From Sickness, the Stomach is known to be out of order, from Faintness, the Heart.

5. From things Excreted. That the Lungs are affected, from Spitting up bits of spungy Flesh. From the Contents of the Guts coming out of the Belly, it is known that the Guts are wounded.

C H A P.



C H A P. V.

F R O M *what Signs is taken the knowledge of the Symptomes?*

Falling away in Bulk, from a Diminution of Nutrition.

A distempered Sanguification, from a discoloured Skin.

So the weakness of the Heart is known from a weak Pulse.

From what Signs is it known whether a Disease will end in Life or Death?

From Four.

1. From the Species of the Distemper. Whether it be a Pthysis, a wound of the Heart, the Plague or a Cancer.

2. From the height of the Disease and strength of the Patient; whether a Disease be great in itself, or comparatively, if it continues long and is at the same Time high, it is fatal.

3. From Motion; if a Disease be long, altho' it is not very dangerous or high, yet will it waste the strength and bring Death.

4. From the Manner; a Disease that is known to be fatal, is the worst, and attended with the worst Symptomes.

Note,

Contraries tend to Health;

1. As an *Ephamera*.

2. A

2. A slight Disease, and not a malignant one.

To the forementioned Signs something may be added concerning the time of the Year: So Diseases are wont to be longest in Autumn and Winter, but shorter in the Spring and Summer, because of the Thinness of the Humours, and the Openness of the Pores.

CHAP. VI.

Of a Crisis, critical Days, and their Signs.

WHAT is a Crisis?

A sudden change of a Disease for Life or Death.

How is it divided?

Into good and bad, perfect and imperfect; We see Feavers are sometimes suddenly removed by a Sweat, Looseness, or bleeding at the Nose.

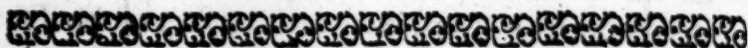
What is the Cause of a Crisis?

A Vehement Influx of the Animal Spirits, upon some Irritation into the Fibres of some Part.

Critical Days, are the Climacterical Years, amongst the Rich, and Covetous; and the Bissexiles with Child-bearing Women.

These are meer Fables. There is no more to be attributed to those Days than to other. See Hippocrat. Aphorisms.

CHAP.



C H A P. VII.

Of the Pulse, as a Sign.

IN the Physiological Part we described the Pulse as an Action; here we only consider it as a Sign, for so some of its differences or kinds are to be given, according to which a Physitian judges of several Things. But here above all it is to be taken Notice that the Pulse is very fallacious, and changable upon any Motion either of the Body or Mind, wherefore a Physitian is in the wrong to feel the Pulse as soon as he comes to the Patient, when even the concern the Patient is under about his behaviour to the Physitian will alter his Pulse.

How many are the differences of Pulses?

A great many; but of them all, the knowledge of Four is enough.

For there is a great and little Pulse.

A strong and weak Pulse.

An equal and an unequal one.

And a quick and slow Pulse.

1. A great Pulse is when the Artery beats in all its Dimensions.

2. A strong Pulse is when the Artery forceably strikes against the Finger.

3. An equal Pulse is that which strikes the Finger equally.

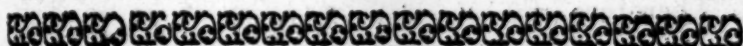
4. A

4. A quick Pulse, is that which strikes the Finger often.

Note,

From the contrary Causes flow contrary Pulses.

1. Little.
2. Weak.
3. Unequal. And
4. A slow Pulse.



C H A P. VIII.

*Concerning the Pulse in different Temperaments,
Ages, Sexes, Times, in Sleep, and the
Passions of the Mind.*

HERE it is necessary to know the natural Constitution of every Body, and then it will be easy to find the differences of the Pulses.

1. What Pulse is proper to a Temperament that is hot, to one that is cold, moist, dry; also to hot and dry, cold and moist, &c.

2. What kind of Pulse have Children, or is proper unto Youth, Men, and Old Age.

3. What in the Spring.

4. What in Summer, Autumn, and Winter.

5. What in Sleep.

6. What in Anger.

7. What

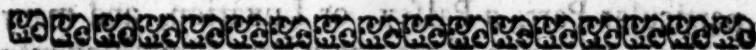
7. What in Sadness.

8. What in Joy.

9. Lastly, what in Lovers, whose Spirits constantly move; now they fear, then hope; now are joyful, then sad; and therefore their Pulse is always unequal and irregular. Every Author has different ways of accounting for these things; but Reading some of them, and observing the particular Constitutions, any one may Form to himself rational Apprehensions therein.

Therefore for Brevity sake, I shall say no more upon this Head.

CHAP.



CHAP. IX.

Of Urine, as a Sign.

WHAT is necessary towards a further knowledge of Urines?

Here we speak of Urine only as it is an Effect, which points out some Cause in some part of the Body. So it denotes to us the Temper of the Body, or something particular concerning its Parts, which the *Serum* continually passes through; as it is from them that it is varied in its Colour, Substance, or Quality. But that we may learn the most from the Inspection of the Urine, it ought to be that which is made after Chilification is finished, whether it be in the Night or Day Time.

How is the Urine of a Brute known from that of a Man?

If on purpose to deceive, such Urine is shewed for a Mans, the best way to know it is from its smell.

Can a Disease of any Part be known from the Urine?

No, and consequently every Disease cannot be known from the Urine (as some Quacks impose upon People.) The Diseases of such Parts cannot be told from the Urine which have no Effect up-

on it, as a *Vertigo* of the Head, a Wound in any particular Part, a Palsey, or Luxation, and many others; although from every Part something may be carryed by the circulating Blood to the Reins, and so strained into the Bladder.

What things are chiefly known from the Urine?

Chiefly the good or bad Constitution of those Parts, from whence the Urine has its Generation and Perfection. Hence when we see different Colours of Urine, it is a diagnostick of Life or Death, as we shall see in what follows.

But does not Urine instruct us upon various Accounts?

It is to be considered variously, as upon account of Colour, Smell, Taste, Quantity, Consistence, and several other of its Contents, frequently observable therein.

CHAP.

C H A P. X.

Of the Colour of Urine.

WHAT Colours are most particularly taken Notice of in the Urine?

Four. White, Yellow, Red, and Black.

Are there any general Causes of the Colour in Urines?

The general Cause is Heat, in like manner digesting and acting upon the Aliments in the Stomach and Intestines, as upon the Chyle when mixed with the Blood, and the nutritious Juices: That Matter which by its mixture tinges it, is afterwards added; and that by its defect, the Urine is of a water Colour, is not to be allowed because Water has not any Colour at all; and so generally there are but two Causes of the Urines Colour.

How do you prove that Heat is a Cause?

It appears very plain; for we see in Fevers, in hot Weather, after Exercise, after long Watching, where the Heat is aggravated, upon long fasting, upon a longer Retention than usual of what ought to be excreted, that the Colour of the Urine is higher.

If it be objected that in those Cases the Urine is coloured not so much by the Heat immediately acting upon it; but as that Heat generates Cholera, which upon its mixture tinges also the Urine.

I answer, That there is then more Choller generated, and that it may be mixed with the Urine, and tinge it; but I cannot admit that the Urine receives all its Redness from Choller only, as it acts with equal Virtue, and at the same time upon the watery part of the Urine, as upon that matter which is convertible into Choller.

But we see that by boiling, Beer grows higher coloured; that Rhenish Wine mixed with Spanish, gives it a higher Yellow, and that lastly, Urine it self boiled upon the Fire grows very Red. When I talk here of Urine, I would not be understood to mean only a simple Fluid, but as it is a mixture with Bile and other Juices, (which is naturally excerned with it in the Reins) and so that Objection is not of force against us; but so without doubt, the Urine, as it is here understood, does take its Colour.

Of how many sorts is White Urine?

Of two kinds; one is thin and watery, the other is thick and milky.

What are the Causes of these Urines, and what do they signify?

The Cause of a watery Urine, is first of all a weak Heat, and too much Drinking. Secondly through the Laxness of the Body, its too hasty Passage; for so a due Chyle or Blood cannot be made, so as to mix any thing with the Urine which will tinge it: Lastly the Bile by its thinness and lightness flys up to the Head, as it happens in Feavers; and threatens a *Delirium*. A milky Urine has a mixture of some white Juices, as Phlegm, Chyle; (I my self saw a certain *Divine* whose Urine was daily, two parts, or half Chyley,

(as Sir Rich. Blackmore the Kings Phyfitian, is my Witness) *Semen* and *Pus*, concerning the Colours, see *Fernelius* and *Willis*.

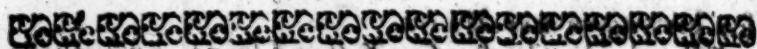
What is the Cause of a Yellow Urine, and others near that Colour?

A yellow Colour proceeds from due Mixture and Digestion of Chyle with the Blood.

To this Colour is referred that of a Barley or Citrine Colour, and is the Colour of that of Persons in a good state of Health; and as it is the natural Urine of a sound Person, it is made the Standard of all other Urines.

If the degree of Heat be too intense, it will then tinge the Linnen with a yellow Colour, which is a sure sign of the Jaundice. Red Urine is occasion'd by a mixture of Blood, or a greater degree of Concoction. The Blood is seperated with the Urine, either by being too thin and passing the Kidneys with it, or by some Vessels breaking in the Kidneys or Bladder. Black Urine and others of that kind, come from an Adustion or Corruption of the Humours in the Body, and are fatal, unless they are discharged upon a good Crisis; especially that sort which inclines to a Blew; but not a Green, for that may easily happen from a Tincture of Green Colour, such as is often found and brought up from the Stomach.

N. B. Urine exposed to the Air changes its Colour,



C H A P. XI.

Of the Smell and Taste of Urine.

WHAT is the natural Smell of the Urine, and what signifies its want of Smell?

The natural Smell is Stinking, Strong, and Sulphureous: If it wants Smell, it denotes too hasty a Secretion.

What does it signify when it stinks too strong?

Either Corruption or Exulceration, unless stinking things have been before taken in; as rotten Cheese, Garlick, &c.

Observe notwithstanding, that corrupted Matter mixed with the Urine does not always occasion a Stink.

What is the natural Taste of the Urine?

Salt and Nitrous; if it has any other, it takes them from a mixture of other Humours.

Is it not proper that the Patient, or a Servant should Taste the Urine?

It is below the Dignity of a Physician to do it, but it may be done by the Patient himself, or his Servant, who may give an account of it to the Physician, by which he may obtain some light into the Distemper, if he cannot do that he had better enquire nothing about it.

C H A P.

C H A P. XII.

Of the Quantity of Urine.

WHAT do you understand by the Quantity of Urine?

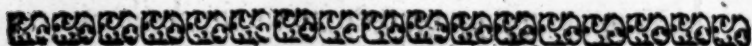
Its Encrease or Diminution.

How much ought it to be in a natural State?

In Proportion to the Liquids taken in, so that it be somewhat less, (a third) that some Parts may go to Nourishment, some perhaps will go off by Sweat, Transpiration, or Spittle, and some remain with the Blood, to assist its Progress.

What do you judge from a greater or lesser Quantity of Urine?

The Cause of too much Urine, unless it be from the Coldness of Air hindring Transpiration, or from Dieureticks, or after a Stoppage, or in a Dropsy, Rheumatism, or *Crisis* of a Feaver, by which the Distemper is frequently removed, is from a Weakness, and too great a Laxity of the urinary Passages; and is followed by a Wasting, as in a *Diabetes*; a lesser Quantity, unless it be from a Defect of Liquids taken in, denotes a great Heat, exhaling the *Serum* by Steams, Sweat or Transpiration, as is often seen in Feavers, or an Obstruction of the urinary Passages, from whence flow Dropsis, Rheumatisms, Catarrhs, Pains, and divers other Ills, as it happens to fall upon this or that Part.



C H A P. XIII.

Of the Consistence of Urine.

WHAT is the natural Consistence of the Urine?

Like that of Beer moderately boiled and fermented, or a lixivium a little boiled; from this natural, Urines differ in Distempers.

How many kinds are there of distempered Urines?

Four, the first is too thick, for want of Serum, or the mixture of some viscid Substance, as we see it in the beginning of Feavers.

The second is turbid; which differs from that which is too thick, as it is less transparent: Glue made of Fish and the white of an Egg, are thick, but also transparent; and therefore some Urines are called turbid.

What is the Cause of thin Urine?

The third, is thin Urine, which is from an Obstruction of the urinary Passages; and so it is frequently in the Stone, as I have found by Experience, in many of my Patients, who have had the Stone; or from too weak a Digestion, which does not enough break the Chyle.

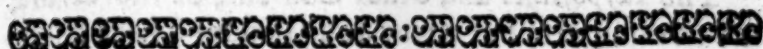
How comes the Urine to be transparent?

The fourth, is transparent Urine; when there is less gross Matter between the serous Particles of the Urine, so that the Rays of Light are more easily and more directly transmitted.

What is the Cause of muddy Urine?

A Cause contrary to the former.

C H A P.



C H A P. XIV.

Of the Contents of the Urine

WHAT do you understand by the Contents of the Urine?

It is something visibible in the Substance of the Urine?

Of how many kinds is it?

Two: Universal and Particular.

What is the Universal?

What is common almost to all Urines, and that is threefold, the *Hypostasis*, *Eneorema*, and a little Cloud.

What is the Hypostasis?

That which settles at the Bottom.

What is the Eneorema?

That which is suspended in the Middle.

What is the Nubecula, or little Cloud?

That which floats near the Top.

Observe. Of these the *Hypostasis* only ought to be in sound Urines, which always denotes a good Digestion, and which if it be of a whitish Colour, and of a round and equal Figure, it is the best.

From

From what, and how is the Hypostasis made, and its other Contents; and what do they signify?

The *Hypostasis* and other Contents of the Urine, are nothing else but many long slender Threads, or Particles, which the *Serum* of the Blood, in its Transculation through the Parts, takes up from the Chyle, and that nutritious Juice, into which our Blood is changed before it passes into Nourishment, which Particles as they are variously moved amongst themselves, by their Asperities and Angles lay hold on, and involve one another, and according to their Gravities, and the Substances which they produce, make either a *Nubecula*, *Eneorema*, or *Hypostasis*. But in this also the greater or lesser Consistence of the Urine avail much; to which Purpose take Notice, that the Blood, or any other Humour before we are nourished with it, is turned into a glutinous Substance, not unlike the White of an Egg, and afterwards into Threads, which easily lay hold on one another. And that there are such fibrous Particles in the Blood, sufficiently appears from diluting it with Water, upon which there will presently be seen divers slender Threads floating about therein; nor are such Particles altogether wanting in the Chyle, and consequently from the general Contents of the Urine, may not only be known, that the last Concoction is perfected, but also that that in the Stomach and Guts goes on well.

Again, This Cloud or *Eneorema* may come from hence, that the nutritious Juice, is not sufficiently concocted, or that these Threads are not worked up thick or firm enough; but as they are light and spongy, are sustained by other Parts,

or

or carry other Particles along with them, which obstruct their Interstices and render them too thick and dense to admit of a good *Hypostasis*.

What does a red Settling denote?

That the Nourishment is overmuch concocted.

What signifies a corrupted and an unequal Hypostasis?

That the nutritious Juices are not equally digested, or at least are not of a similar Substance, and therefore not equally to be joined with one another.

If an *Hypostasis* happens about the fifth, sixth, or seventh Day in a Fever. *N. B.* It is a certain Sign of Recovery, especially if it was not so before, and the *Hypostasis* be not separated or unequal.

In like manner in Fevers, the *Encorema*, or Cloud, about the third Day denotes Recovery, which is further confirmed, if it thickens a little, and approaches nearer to the Nature of an *Hypostasis*; for such is the Fore runner of the *Hypostasis*.

Does not the Hypostasis differ according to the Age of the Patient, as has been already mentioned?

Very much; for sometimes it has a Mixture of morbid Matter along with it, as Pus, Blood, Gravel, &c. but if it be made of the Excrements of the whole, it is wont to be of a white, brown, or red Colour.

What do you understand by the particular Contents of the Urine, what are their Kinds, what do they denote, and whence are they generated?

They

They are of several kinds; the principal are the Stone, Sand or Gravel, Pus, Blood, Caruncle, Fat, and a gritty, or Bran-like Sediment; the major Part of which denote a Disposition to the Stone in the Kidneys or Bladder. But the Fat shews a Colliquation of the Body, and swims upon the Urines of Consumptive Persons.

As for the Gravel or Sand, they are not always the Fragments of greater Stones, but only a saline Concretion in the Uriue.

The End of the Pathological Part.

THE



THE
 GROUNDS
 OF
 PHYSICK.

Part the Fifth.
 THERAPEUTICA.

CHAP. I.

*Of an Indication, the Thing Indicating, and
 Indicated.*



HAT is an Indication ?

To make a Person a rational Physician, and enable him to make through and lasting Cures, it is necessary that he be a Master in Indications, by which to be instructed what is fit to be done, and what not,
 An

An Indication therefore is a Knowledge of what to be done. N. B. To consider the Thing helping, and the Thing helped.

Of how many Sorts are Indications?

Three; 1. Conservatory. 2. Preservatory. 3. Curative.

What is a Conservatory Indication?

The Preservation of that which is according to Nature.

This is done by things of the like Nature.

What is a Preservatory Indication?

A Preservation of that which is contrary to Nature.

What is a Curatory Indication?

The Removal of what is contrary to Nature. This, as the foregoing, is done by Contraries.

What is the Thing Indicating?

Something doing in a living Body, from the Knowledge of which some Remedy is suggested.

What is the Thing Indicated?

It is what afflicts the Intention Indicated.

Of how many Kinds is the Thing Indicated?

Twofold; the Remedy, and its proper Use.

The Remedy is threefold, for it respects the Quantity, the Time, and Place of Administration: For in these consist the right Use of a Remedy.

Concerning Coindications, and Contraindications, consult other Authors.

CHAP.

CHAP. II.

Of the Method of Diet.

WHAT do you understand by the Method of Diet?

In a large Sense it is taken for the Use of the fix Non-naturals, according to the Condition of a Patient.

But in a stricter Sense it is understood only of that Diet which is to be observed in Sickness; because it is there of the greatest Concern and Difficulty, and therefore concerning that it is, that I shall here treat.

From what do you take your Indications?

From the Loss of Strength; not from its Oppression, but from a Waste of Blood or Spirits.

Whence arises the differences of diet?

From the Form, Quantity, and Quality of Food, from the Occasion or Opportunity and Manner of using it.

Whence arise the differences in Food, and of how many Kinds are they?

From their Difference in Substance; and the Rule of using them, is without any Regard to the Quantity, so that they be suited to the Strength of the Patient.

The Forms of Food are threefold; viz. thick, or firm, thin, and between both.

What

What does the thinner Food ?

The thin Food is of several sorts, as thin, thinner, and thinnest, &c. the last degree of which is next to Fasting. The thinner of these are Water sweetened, Batly-water, Chicken-Broath, Grewel, roasted Pears, or Apples, which are to be ordered with Regard to the Accuteness of the Disease.

Where is a thin Diet of Service ?

In acute Diseases. A gross Diet to Persons in Health, and a moderate one in protracted and chronical Cases.

Is it the worse to err in a gross or a thin Diet ?

In long and dangerous Diseases it is worse to err in a thin Diet, than in the other ; but in acute Cases the contrary ; which I have found by Experience, that never any suffer by too thin a Diet in acute Distempers, but some have then so little Relish as to eat little or nothing.

But there is never so much Mischiefe observed to arise from hence, as from an Overfulness of Eating, from whence arise frequently grievous Oppressions, Uneasinesses, Watchings, a Return of Feavourish Heat, or a Weakness from the Oppression of the native Heat, insomuch that the Blood is not able to throw off any peccant Humours ; whence its become proverbial among Physicians, *Let not any Patients be too fat.*

Whence is the Quantity of Food judged ?

As for what regards the Quantity of Food in Diseases, a Patient may feed more largely at the Beginning of a Distemper, while he is as it were in Health ; but nearer the Height, or in the Height it must not be allowed of, or very sparingly at least.

Yet

Yet this is not to be observed in every Disease, for in the Beginning of Inflammations; especially of the nobler Parts, while the Blood continues yet to break in upon the Part affected, a more sparing Diet ought to be observed, lest the Tumour be encreased; nay, in some Distempers different from Inflammatory, it is best to eat but sparingly, as where there are Crudities in the Stomach and Bowels, which often happens, it is most proper to waste them by a parsimonious Diet.

Hence it is the Custom among Physicians, and a very good one too, in the Beginning of Diseases to allow but very little Food.

Notwithstanding which, he more grievously errs, who in the Beginning allows too scantily, than he who allows too much. In the Height of the Disease it is just contrary.

Does not such a particular Appetite require such a particular Diet, and the like as to Temper and Custom? For Custom and Appetite often contraindicate, but the Temper and Appetite never?

The Quality of the Food should be suited to the Appetite, way of Living, and Temperament, and not according to a Person's Strength, which only indicates of what Consistence it ought to be, as it nourishes, and does not regard its Qualities, as it is an Alterative, for in that Respect it is to be considered as a Medicine, or at least as a medicinal Diet.

By the Quality of Food is to be understood of that which makes it Medicinal, as Heat, Cold, Moisture, Dryness; or as it is laxative, astringent, inciding, &c.

But it is not to be understood by Quality of any thing which it has as it is Food, as its Easiness or Difficulty of Digestion, as it is of a good or bad Nourishment, of a gross or thin Consistence, &c.

Therefore the Appetite requires sometimes a contrary Diet, but the way of Living and a Temperament one that is similar.

Furthermore, the Appetite or Affection, and Custom do not very seldom contraindicate; as if inclinable to hot and dry, and requires therefore a cold and moist Diet; but as it has been the Patient's Custom to hot and dry Diet, he is thereby forbid what is cold and moist. Again, likewise in settling the proper Diet of a Patient, it is to be considered whence he erred in his way of Living, for if it appears that he derived his Illness from too cold and moist a Diet, he then ought to use a mild and temperate one.

Again, if a Person has been accustomed to a hot and dry Diet, yet so as not to receive any Hurt from what is cold and moist, then he may freely use the contrary; the Affections and Temperament never contraindicate; for the latter always indicates its own Abstraction, *i. e.* by which the natural Temperament is restored, and falls in with the same Indication.

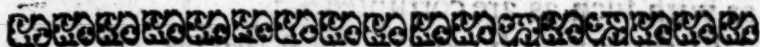
Whence is the Manner of Eating prescribed?

That is, whether it shall be little and little at a Time, or at Set-Meals, is to be determined from the Nature of a Disease and the Strength of of the Patient. The Strength may be very little, moderate, or great; and a Disease is attended
either

either with many ill Humours, or but with a few, or with such as are corrupted.

Little Strength requires but a sparing Diet; a moderate one a midling Diet, and where a Person is strong, is allowed one that is plentiful. Where in Diseases there is much Strength, but attended with a Fulness of Humours, as in *Plethora's*, the Patient ought to eat but seldom and sparing.

Where the Spirits are low and attended with a Scarcity or Corruption of Humours, the Meal ought to be sparing, but frequent.



C H A P. III.

Of Blood-Letting.

IS not Vena-Section the Indicum of something indicating, and not the Means of Remedy in diverse Indications?

Vena-Section, or Phlebotomy, is a very ancient Remedy, and used by every Nation, but it is not indicated by any Thing, but it is the Means of Remedy in many Cases.

It is thus proved; because if it be indicated by any thing it must be by a *Plethora*, but that indicates only a Diminution of the Quantity of Blood, which may be either by Vena-Section, Cupping-Glasses, Scarification, Leaches, Abstinence, or Exercise.

Therefore Vena-Section is not the *ipsum Indicum*, but merely the Means toward a Remedy, though a very general one; for there are few Diseases, in which the Strength will allow it, but where Vena-Section is needful (as a Means of Remedy) it is when the Blood abounds in Quantity.

This preserves the Blood warm and fluid in the due Bounds of its Circulation.

But it is certain that an ill Habit is sooner mended by alterative Medicines than by Phlebotomy.

To

To how many Purposes did the Antients reckon Blood-Letting proper?

Three, Evacuatory, Revulsory, and Derivatory; I cannot allow of above one, and that is Evacuatory; and under that Consideration ought all to be reckoned, for by taking away some of the Mass, the rest will be the better kept within the Vessels and the Compass of its Circulation, whence any Flux or Inflammation will be prevented, that is, into any Part that is in Pain, bruised, or hurt. So also by such Evacuation of Part of the Blood, the Veins will be in Proportion thereto emptied; and so the Blood extravasated in any Part, as in a Quinsey, Peripneumony, Pleurisy, and other Inflammations, and not yet concremented, or at least yet dissolvable by proper Medicines, will be again taken up by the Veins.

Is there any Distemper more particularly cured by Plebotomy in any particular Part?

Considering the Blood's Circulation, it is indifferent what Vein is opened: But in Diseases from an Obstruction of the *Menses*, if we order a Vein in the Foot to be opened, it much contributes to promote their Discharge. For by this Means the Blood flows more swiftly into the open Air or Water, than if it had any thing before it; whence the crural and illiack Arteries are the more emptied, which the Blood then flows quicker through; as also the Arteries of the *Uterus* which are derived from them, so as frequently to break through the Obstructions.

What Veins are commonly opened?

In the Head, the Jugular, Temporal, and those in the Forehead; In the Arm, the Cephalick, Median,

dian, and Basilick; in the Hand, the *Salvatella* and Cephalick; in the Foot the *Ischiadick*; the other Veins in other Parts of the Body do not lie so bare.

What Caution ought to be observed in Phlebotomy?

First of all, that none of the adjacent Nerves or Tendons be pricked, upon which follow grievous Convulsions, and sometimes Death, or that the adjacent Artery be not cut, for that is attended with an *Anerusma*; and also that in closing the Orifice, the Blood be not left between the Lips, lest any Inflammation arises, but it is to be well washed out, and then bound up.

It is to be taken Care also that in the Plague, Small-pox, Spotted and other malignant Feavers, a Vein be not too hastily opened; for fear the Malignity should get into the emptied Veins, and kill the Patient.

Neither in the Height of a Feaver, where the Spirits are not to be sunk, nor in the cold Fit, if they are intermitting, nor in Women with Child, especially in the Beginning, or towards the End, and by no Means in the Foot, lest the *Fetus*, which as yet is but weakly tyed to the Womb should be by a large Flux of Humours forced out: There is the least Danger of Bleeding Women with Child, in the Arm about the seventh Month, and many Women now accustom themselves much thereto, judging it healthful for the Child, nor does it rarely do any Harm. But take care of exceeding; that is, in taking too much at a Time, for it is much better by little at a Time.

Old Persons and Children do not so well bear it, because from their Need of Nourishment they cannot easily recover the Loss of their Blood, especially if it be good.

Although

Although sometimes in a Quinsy, Pleurisy, &c. Blood is taken from such with Success.

It is proper to take away more from a fleshy Person than a fat one; as also from one that is lean, so that it be not from fasting or hard Labour, &c. for such have most Blood.

What is necessary to make a Vein which is to be opened appear, so that the Blood may the better flow out, and to prevent a Person's Fainting?

A Ligature must be made above the intended Orrifice (as it is customary with Chyrurgeons) by which the veinous Blood in its Return to the Heart may meet with some Stop. The Vein ought also to be rubbed, the Hand shut, and something held between the Fingers; if it be in the Foot, it should be put into warm Water, by which the Blood by being rarefied flows faster to it, a Ligature being made at the same time to prevent its Return to the Heart; but where the jugular or sublingual Veins are to be opened, a Ligature is to be made about the Neck, so loose as not to hinder Breathing.

The Vein must be opened with a steady, and not a shaking Hand, and that something obliquely, for that prevents its slipping from under the Lancet. If when the Vein is pricked the Blood does not run (the Apperture being of a moderate Bigness, as it ought, for if it be too little, only the thinner Part flows out), the Bandage ought to be somewhat loosened which also stops the adjacent Artery, that the Blood may have Room to flow from the Heart into the Vein which is opened; or the Patient must cough, that the Motion of the Blood might be increased by the Contraction of the Lungs,

Ought not a Clyster to be used before Bleeding?

Some Physicians order it, to prevent the Cru-

dities

dities of the Intestines, from crouding into the Meseraick Veins ; and for the same Reason, Bleeding is forbid after a Meal.

But this Caution is needless, for it appears by Ligature, that the Chyle is not conveyed from the Intestines to the Heart by the Meseriack Veins, but by the Milk Vessels only ; and much less any Crudities, which are thicker and more viscid ; and if any Hurt can come from a full Stomach, it is Vomiting, which happens by this Means ; upon some Reflux of Blood and vital Spirits from the Stomach and other inward Parts, its fleshy Fibres are less inflated and constringed, and more stretched by the Aliment, whence the nervous Fibres being likewise more drawn, an uneasy Impression is made, which being communicated to the Brain, suddenly the Animal Spirits there are rouzed up, and rushing impetuously through the Nerves into the Fibres of the Stomach, they contract, shake and subvert them.

Some Persons are afraid to order Phlebotomy in Dog-Days : Likewise some are of Opinion that the first Time a Person bleeds, it is more effecacious than any other to remove a Disease ; what do you think of those Notions.

Many dare not open a Vein in Dog-Days, as if there were something in them of a noxious Influence, but chiefly because the Heat at that Time may prove injurious, by dissipating the Spirits ; but if Persons live temperately, or Necessity requires it, a Vein may be then opened. In like manner Astrological Observations are not to be regarded, which by their Calendars they would make us believe are necessary.

Some

Some also will not, for the Prevention of a De-
stemper bleed in *May*, for fear that the next Year
the same will return again; and if it should be
necessary, and particularly required, they would
otherwise fall into some greivous Disease, but
these are Trifles.

For although in the following *May*, the Blood
will again grow turgid; yet if bleeding be omitted,
there is no certainty of falling into a bad Disease.

So also some thinking that the first bleeding pre-
vents a Disease, is equally ridiculous.

Although indeed all Remedies are of greater
Effecacy, when they are first administred, than
when by long use the Body has been accustomed to
them.

*Does bleeding draw from the Circumference to
the Center, or the contrary? does it also cool, and
by what means?*

To the first I answer.

By Blood-letting, if it be understood only of a
moderate Emission, during that Time the Blood
flows out of the Vein, and sometimes afterwards
it runs the faster in the correspondent Artery, be-
cause it has a freer Passage, and is the more ea-
sily conveyed through the Body; whence bleed-
ing draws from the Center to the Circumference.
But it draws from the Circumference to the Cen-
ter by this means, because those Veins which are
at the Surface are the sooner emptied into those
nearer the Heart.

To the second; that bleeding cools, and warms:
It cools in Feavers, as by encreasing the Blood's
Celerity in the Vessels, the confused Motion of its
Particles with one another is abated; in which con-
fused

fused Motion the feavourish Heat chiefly consists; but it cools in a *Plethora*, wherein the Fire of the Heart is almost put out by too much Blood, or the Blood at least by its seldomer Passage through the Heart, is agitated and rarefyed therein with the more difficulty.

Is it proper to Sleep after Bleeding?

I do not blame Sleeping an Hour or two afterwards, but think it good, because it refreshes the Spirits.

What is to be remarked in the extravasated Blood; and what may be known from thence?

It is first to be observed whether it coagulates, for in a Fever, for Instance, if it does not coagulate, it shows its great Dissolution and Corruption.

Without a Fever it denotes an insufficient Chylification and Sanguification, and that the Heat is weak.

If the Blood is very fibrous and thick, and well concreted, its a sign of strength, of a good Chylification and Nutrition. But if there swims upon it (*N. B.*) a whitish Matter not differently coloured, we must not immediately pronounce the Blood to be corrupted, as some unskil'd Persons are wont to do, but it is frequently Pleghm or Chyle, which circulates with the Blood into which it is not quite changed, and the oftener it is found in cold and phlegmatick Constitutions, by how much the slower they turn the Food into Chyle.

As for those white Fibres which appear upon diluting the Blood with Water, they are nothing else then the Particles of Phlegm or Chyle, not enough divided, but cohereing together and entangling

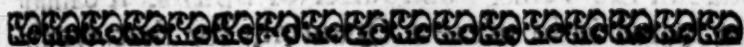
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ling one another; as it has been already said, where we treated about the Blood.

Lastly, if much *Serum* swims upon the grumous Part, it denotes drinking a large Quantity of Liquor, or a weak natural Heat, or an insufficient Discharge by Urine or Transpiration.



CHAP. IV.

Of Bleeding by an Artery.

I*S there not required a great deal of Skill to open an Artery.*

As Blood is taken away by the Veins, so by some it is also let out by the Arteries, which is called *Arteriotomy*. But herein great care is to be used, for although many attest the benefits received hereby, and I my self have seen greivous Pains of the Head, and other Distempers cured by it; yet it is attended with hazard, because the bleeding is not easily stopped, nor is the Orrifice easily Cured.

What Artery is generally cut, and how is it raised?

The Artery which is most usually opened, is that which runs over the temporal Muscle. There are others in the Forehead, in the Hands and Feet, and in general, wheresoever they are the easiest to come at. When the Temporal Artery is opened, the larger it is, it is to be bound with a gentle Ligature,

Ligature, for so the Blood will run the slower therein; or the Arteries of the Arms are to be tyed, that the Blood may flow the more towards the Head.

How much Blood may be let out, and how is the Orrifice to be closed?

The Arterial Blood, as it is more noble than that in the Veins, and fuller of Spirits, it cannot be spared in so great a Quantity, for that would make an Alteration much for the worse, whence Fainting, &c. To the Orrifice is to be applyed some astringent Plaister, and continued to the eighth or ninth Day till it is quite healed.

C H A P.

C H A P. V.

Of Leaches.

IN *What Cases are Leaches serviceable in Physick?*

We use Leaches, or Blood-suckers, more especially where Phlebotomy, or Cupping cannot well be done, as to the Nose, Lips, Fingers, and Toes, Womb, Fundament, &c. as also to Children, where there ought to be but little Blood taken away.

Which are the best?

The best are those which are found in clear Water, and are of a middle seize, of a Liver Colour, the Belly reddish, and the Back a dusky green, interspersed with yellowish streaks. The rest are Poisonous, especially those Brown ones with large Heads, which live in muddy Waters.

How are Leaches to be managed?

These Animals have very small sharp Teeth, with which they fasten upon the Skin, and while they are sucking, hang fast thereby. That they may suck the more greedily the Part should be rubbed with Pidgeons or Chickens Blood, or it should be rubbed 'till it looks red, or pricked; neither should they be handled bare, but held in a Linnen Cloath. When they are fastned, if
much

much Blood is required, let their Tails be cut off with a pair of Scissors, so the Blood will flow thro' them as through a Syphon. Care must be taken that their Teeth are not left behind, for so they make the Part incurable, yea, sometimes Death ensues.

It is best to let them suck to a Fulness, when they will drop off themselves, or sprinkle some Salt upon their Heads, and then to obtain the quantity of Blood desired, to apply others in their room.

Several other Questions might be asked, as whether those fresh taken are best, or those which have been long kept, or whether they suck Melancholly Blood most, &c. which for brevity sake I think may be omitted.

CHAP.

CHAP. VI.

Of Cupping.

WHAT are the Instruments for Cupping?
and how are they applied?

They are made of Glafs, Horn, or Metal, &c. they are to be applyed to the more fleshy Parts, to which they stick best; they are not to be set upon Tendons, where they irritate too much, or upon Arteries, where they sometimes make too large an Expansion.

They are applied either more or fewer, greater or lesser, as the Exigency of the Case requires, the Part being before rubbed to a redness, with a hot Linnen Cloth.

Those which do without Fire, are made of Horn or Wood, and they have at the top a Hole, thro' which the Air while they are upon the Part is sucked, and so the subjacent Flesh rises, the Hole is then stopped with the Tongue and afterwards with the Finger. Where Fire is used a little Tow is put into them, which being kindled is with the Instrument clapped upon the Part. But least the Skin should be burned some stick the Tow to the Head of the Instrument with Turpentine or Wax, or place a piece of Money over the Skin, and upon that lay the Tow.

What

What are the Effects of Cupping with or without Scarification?

That which is done without Scarification, only draws out the Blood and other Humours from the circumjacent Parts, in order to render them fitter to transpire through the Skin.

That which is done with Scarification, or where the subjacent Skin is slightly wounded by Incisions, besides what the other do they fetch out several Ounces of Blood and other Humours, and so much the more if the Part was previously cupped without Scarification, for by that means the more Blood is brought to the Skin.

How do you account for the Operation of Cupping?

The Air either by Suction or by the burning Tow is too much rarefied, to be contained in the Glass, and is therefore in part expelled. The expelled Air, since it cannot get back into the Glass which strongly on every side adheres to the Skin, nor can penetrate other Air, and therefore has no Place to get into, since the Universe is full of Body, it cannot but press upon the Flesh and its contained Juices, so as proportionably to thrust them up into the Glass, where there is the least Pressure. The more kindled Tow therefore there is in the Glass, and the more the internal Air is rarified, so much the higher will the Flesh rise withinside. Whence long after the Fire is out, it is not to be wondred at that the inclosed Air condensing, again lets in some of the outer, and so the Glass either falls off, or draws but very little.

Do not some fall into an Error in their Application of Cupping-Glasses?

They do very wrong who cover the Glass and Part

Part they stick upon with warm Cloths, as if the Blood and Flesh would thereby be the higher elevated, for in truth they rise the less thereby, for the Heat rarefies the Air within the Glass and depresses the Skin, and thrusts it back. On the contrary the coldness of the Ambient Air by condensing that in the Glass makes it press less upon the Skin it covers, and therefore allows of a greater Elevation; which (N. B.) any curious Person may try by applying successively a warm and a cold Hand thereto. The Glass is not to be snatched away at once, for that makes it too painful, but the Skin should be pressed down on one side with the Finger, by which Apperture, the external Air rushing in, it easily falls off.

What is the Use of Cupping in Physick?

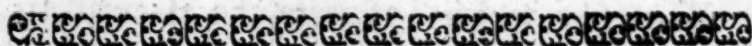
The use of Cupping-Glasses, at least with Scarifications is attended with more Pain than Phlebotomy, but it is more efficacious, especially to draw out any Malignity or Poison, nor does it make any such sudden Change upon the Body.

What kind of Blood is that which is drawn into the Glass?

It is the best; to wit, what by the Pressure of the ambient Air is squeezed out of the capillary Arteries, and parts adjacent, and out of their very Substance; and therefore this Operation is also attended with some hazard; as those Physitians greatly err, who when they dare not take away ten or eleven Ounces by Phlebotomy, will venture to draw from the same Person fifteen or sixteen Ounces with Cupping-Glasses; as it is often done.

For what Reason is Scarrification yet continued in our Practice?

The Antients used to take away Blood by these superficial Incisions or Scarrifications, and empty the whole Body; they apply'd them to the Legs, and Ankles; but in our Times the more delicate People will not undergo so much Pain, wherefore they are never used but where they are needful to take away Blood, or where some Part has a Gangrene, so that by Pain the Blood and Spirits may be so derived thither as to preserve Life.



CH A P. VII.

Of Frictions.

HOW are Frictions made?

With Linnen or Woollen Cloths, or the Hand, &c. rubbing 'till the Skin looks red, and with or without Pain.

Do you think that such Frictions revulse the Blood or Humours?

The Ancients used them for Revulsion, judging that so the Blood or Humours flowing *v. g.* to the Head, might be diverted to another Part, *v. g.* to the Back, as if under the command of the Hand.

But here is no Revulsion; nor can Frictions in any Case act so far, as to hinder the Flux of any Humours to the Head, or if they could do any thing like that, it would be of so little Efficacy or Duration, as not to deserve the Name of Revulser.

of

Of what use are Frictions in Physick?

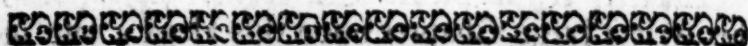
You may if you please read *Cornel. Celsus*, who has writ a large Chapter upon this Head; but in my Opinion Frictions are in this serviceable, as they rarefie the Skin, and make the Blood flow brisker through it, whereby if it has any thing disagreeable mixed with it, it discharges it by the Pores of the Skin.

Frictions also assuage light Pains of the Head, and Epileptick Fits, as they sooth the Spirits by a pleasing Motion of the nervous Fibres.

But strong and painful Frictions exasperate and irritate the Spirits, so that they flow more vehemently and rapidly through the Brain, and stretch it (as in Watching) whence in comatous Cases they help to rouse the Patient. From what has been said it appears that Frictions are much of the same Use in Physick as Cupping.

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CHAP.



C H A P. VIII.

Of Ligatures.

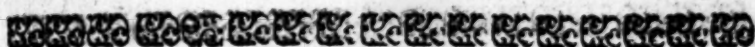
ARE Ligatures yet in Use?

Not much; and many, in what they expect from them, are disappointed.

Do they revulse, as it is thought in some Cases?

They retard the Circulation, or check it, but do not destroy it: They are used in Hemorrhagies of the Nose, Womb, &c. A Part that is long tied is easily seized with a Gangrene.

C H A P.



C H A P. IX.

Of an actual Cautey.

WHAT is an actual Cautey?

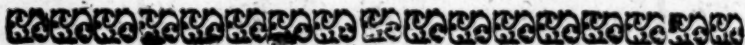
A hot Iron, with which some Part of the Body is destroyed in the Contexture of its Particles, and burnt.

Of what Use is it?

It serves to close up wounded Arteries, and stop a Flux of Blood, in Ampurations, cutting off the Breasts, &c. See *Schultetus, Pareus, Fabricius Hyldanus.*

Q 3

C H A P.



C H A P. X.

Of a Caustick and Vesicatory.

HOW does a *Caustick* act?

A *Caustick*, or potential Caution, or an *Escarotick* works after this manner; its Pores and Particles are so ranged, that when any Steams, or Humours of the Body insinuates themselves into them, the subtile Matter finds such Passages as will admit of its swift Motion through them, and by that means it throws some terrestrial, rigid, and pointed Particles forceably into the neighbouring Parts, and so produces a greater or lesser Heat in proportion to the degrees of Motion in those Parts.

Of what Use is a potential Caustick?

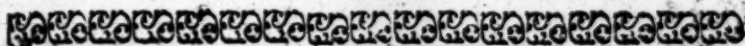
It is serviceable in opening the Breast, an Apostem, and other things, to prevent cutting with a Knife, which is the safer way of opening, and less painful: It also wares away fungous Flesh. Take care of the Nerves, Tendons, and large Vessels.

How does a Vesicatory operate?

It is of the Nature of a *Caustick*, and acts in the same manner but weaker, whereby it is that it does not so much break the Skin: It is of Use in malignant Feavers, and sleepy Cases; see *Geor. Baglivi*, an *Italian*, *de usu & abusu Cantharid.*

They are of Use also where something Acrid is, to be drawn from the Blood.

C H A P.



C H A P. XI.

Of Issues and Setons.

WHAT are Issues, and how are they made? They are little Ulcers which are made in divers Parts by Art: They are made either by an actual Cautery, or a burning Iron, searing thro' the Skin; or by taking a peice of Skin between the Fingers and cutting it through with a Lancet or Scissors; or with a Caustick, which after the Eschar is off, the Hollow is to be filled up with a Pea of a sufficient bigness.

Where are Issues to be made?

In the Arm, between the *Deltoides* and *Biceps*.

In the Thigh, on the inner side above the Knee about two Fingers breadth, &c.

Of what Use are they?

They discharge noxious and superfluous Humours, &c.

What is a Seton?

A Skein of Silk; or a sufficient twist of Thread waxed, which is drawn under the Skin by a sharp Needle, raised from the subjacent Flesh. It is done in the Neck between the first and fifth *Vertebra*, in the Arms, Legs, &c.

What's to be done after the Seton is made?

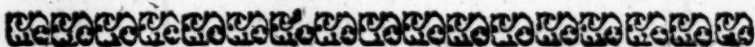
Care must be taken to prevent Inflammation, Digestives are to be applyed, and the Skein sometimes pulled backward and forward; until the Disease is removed.

Q 4

Does

Does not a Seton work more powerfully than an Issue?

Yes, but it is more troublesome and therefore seldom done until other means have been tried in vain.



CHAP. XII.

Of Suppositories.

HOW do Suppositories work?

As other Catharticks; to wit, upon the Fibres of the *Rectum* by which those of the other Guts are also brought into consent, and by a more plentiful Influx stimulated to encrease their peristaltick Motion. By irritating the Humours, they irritate the Belly also.

When are they to be given?

Most conveniently in burning Feavers, by keeping the Body open; and many Diseases of the Fundament and *Rectum*, because there is the best Place of giving them.

Give a Prescription of one or two.

℞ Alumin-crud. pul. ʒss Specier. Hier.
Picr. ʒij mel. ad spissitud. coct. q. f.
M. F. Suppositoria n^o ij, or
℞ Spec. Hier. Picr. ʒi Sal. Gem. ʒss mel:
ad spissitud. coct. q. f. M. F. Suppo-
sitorium.

CHAP.

C H A P. XIII.

Of Clysters.

WHAT is a Clyster?

A Clyster is very helpful in Disorders of the thicker Guts, for beyond them they will not reach, because of a Valve at the Entrance of the Colon, unless that Valve be relaxed, or it be taken away by the Violence of the peristaltick Motion.

How are Clysters hurtful, either too cold or too hot?

They ought not to be injected either too cold, or too hot, but moderately warm. Those that are too cold, coagulate the Blood in the meseraick Vessels, from which arise Obstructions, Gangreens and worse Effects; but from those that are too hot, Exulcerations, Pains, Bloody Flux, &c.

Clysters are of great Use in Physick; sometimes they are Alteratives, or disperse the Wind, soften the *Fæces*, deterge and thin the viscid Humours that stick to the Guts, make way for Purges, bring away by their Irritations Purges that are involved in the Humours, revulses the Humours, and removes the antecedent Causes of Diseases: So in comatous Cases Clysters do good, by strongly irritating the Fibres of the Intestines, and opening the Orrifices of the Vessels, upon which the Humours

mours flow that way. They are prepared of *Colocynthis*, *Rad. Pyrethri*, *croc. Metallor.* and other Antimonials, that they may bring down the *Menses*, allwage Pains, and strengthen the Bowels, as in a Dysentery, &c.

How do you proportion its Quantity?

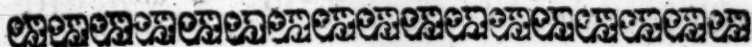
From the Person to whom it is to be given, from the Fulness of the Guts, and from the Part into which it is to be injected.

If to Children, less is to be given than to grown Persons, and less where the Guts are distended with Wind or *Feces*, and also but little when the *Rectum* is affected, as in a *Tenesmus*.

They are wont to be from eight, ten, twelve, to fourteen Ounces.

Bitter Clysters are given against Worms ; Anodines in Wind and Cholick ; strong Purges in an Apoplexy, and Lethargy ; Balsamicks and Carminatives, in Twistings and Gripings of the Guts. Emoliment upon Costiveness. Laxative and Lenitive, with Soap, Turpentine, &c. In the Stone and Gravel.

Consult Physical Authors ; *Mynsicht*, *Bates's* and *Fuller's Pharmacopæa*, &c.



C H A P. XVI.

Of Vomits.

HOW does a Vomit operate ?

A Vomit or Emetick, with its pointed Particles in a disorderly manner move the Fibres of the Nerves, which are in great Plenty dispersed about the Stomach. The animal Spirits rush more plentifully into the Fibres of the Stomach, and invert that Motion which they had before downward, and so by a convulsive Motion of the Stomach, by which its Sides and Bottom are drawn up towards the left Orrifice, and by the Constriction of the Fibres upwards, its Contents are thrown out.

How do things which are nauseous and distastful, occasion Vomiting ?

Because they cannot be well mixed with the Acid of the Stomach, and its other Contents, from whence they float about the Stomach, and by such Motion, and the Nauseousness which they produce, stimulate a greater Influx of Spirits into the Nerves and Fibres, which strongly contract themselves upwards.

Is Vomiting suitable to all Persons ?

All do not equally bare Vomiting.

For healthful Persons do not easily vomit, also phthifical Persons, who have narrow Breasts, such
as

as are subject to Pains in the Head, or to Ruptures, or where there is Danger of any thing breaking.

Note.

1. Vomits are more efficacious than Purges, because they carry their Points further into the inner Coat of the Stomach, and so more vehemently contract the Fibres and Muscles.

Note.

2. When they get into the Mass of Blood, they are not of so much Efficacy as Purges.

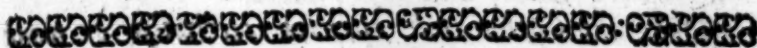
Who are they who best bare Vomiting?

Where the Appetite is decayed, and there is a Nauseousness; where there is an antecedent Cause already in the Stomach; and when Catharticks are administered in vain, especially if the peccant Matter has been already prepared (as what is viscid is broke by Medicines that incide) and so a way made for such Operation.

Note.

Frequent and hard Vomiting relaxes the Tone of the Stomach, weakens the *Viscera*, and hurts the Head. Emetick Tartar of *Mynsicht*, *Hypocucuranna*, *Vinum Benedictum*, *Oxymel*, *Gut. Gamba*, *Turbit. Min.* are the Vomits most in Use with the *London* Physicians.

C H A P.



C H A P. XV.

Of Purges.

WHAT is a Purge, and how does it operate?

A Purge or Cathartick (if it be gentle, as *Cassia*, *Manna*, *Senna*, &c. it is called laxative) upon being received into the Stomach is dissolved by its Moisture and Warmth; and its Parts are to be divided, so that they also act upon and divide the first Humours they meet with: Hence some thinner and more moveable Parts of the Medicine, by vellicating the Fibres are thrown into the Intestines and thence into the lacteal Vessels, whence with the Chyle they get into the veinous Blood, and with that get to the Heart; from thence they are dispersed through the Arteries, to all the Parts of the Body, where by their Sharpness and Motion they cut, break and divide the Humours, until together they get again into the Guts by the Gall and pancreatick Ducts, but chiefly by the mesenterick Arteries.

Whence do grievous Pains of the Belly, and Dysenteries arise from Catharticks?

From some of the grosser Parts of the Medicine which cannot enter the lacteal Vessels, and therefore vellicate, rub, and irritate divers ways
the

the Coats of the Guts ; whence proceed Pains, Superpurgations, and Dysenteries.

Does any Cathartick operate electively, or work upon any particular Part ?

I answer, That no Cathartick does operate electively, or is suited to discharge any particular Humour. It is Folly therefore to think with some that what is called a *Cholagogue*, purges only Cholera, a *Phlegmagogue*, only Phlegm, a *Menalagogue*, only Melancholy, and a *Hydragogue*, only Water.

It is certain also from the cadaverous Smell of what is discharged by Purges, that good Humours, yea Particles of that which is strictly Blood, as also some actually torn off from the Solids, or just about to be added to their Substance, are also carried away ; and from this too it appears to be so, that when they are given to Persons perfectly in Health, they discharge as much, if not more, than from sick Persons, where it cannot be imagined that such a Quantity of vitiated Humours should be lodged.

Besides the Humours, I also make no Question, but that some Spirits pass out of the Masses of Blood into the Guts, and with them are discharged by Stool.

Where, by the way, I would advise my Pupils, not too hastily to have Recourse to Purges, especially strong Ones, as the only Remedies of all Diseases, since they cannot be given without some Injury.

What

What indicates Purging ?

A manifest ill Habit of Body, but not every Fluctuation of Humours; which may rather be drawn away by Cupping, Friction, hot Bath, Sudorificks, or Dieureticks.

What are to be considered in the Administration of a Purge ?

1. Whether it be proper or not. 2. What is to be purged, and of what Kind. 3. How much, what way, and how often. 4. What Time. 5. By what Passages.

To whom therefore is Purging proper ?

First of all to such who are in a bad Habit of Body.

And what is to be observed in such ?

What their Strength will bear, and whether the Constitution of the Body, the Season of the Year, and other Things will allow it.

If a Patient has a Plague, a Spotted Feaver, the Small Pox, &c. he is not to be purged, because it would draw the Humours inward, whereby immediately Sweat and Transpiration, by which the Malignity of the Disease would most successfully be thrown out, will be stopped; and the Matter of the Spots and Pustules being again taken up by the Blood, the Patient must be thrown into bad and dangerous Symptomes.

Whence do you know that there is a sufficient Strength for Purging ?

From the Pulse, Age, Sex, Temperament, Nature, Habit, and Custom of Living.

What Age best bears Purging ?

A middle Age; old Persons, and Children, cannot bear it well.

Which

Which Sex best bears Purging?

The Male ; though there are some Women which will bear very strong Purges, nay, some will hardly be moved by them, especially such as are Dropfical, or have a Suppression of the *Menses*.

What is to be regarded in Purging of Women?

1. That it be not in the Time of their Menstruation, for then by revulsing the Humours into the Bowels, the *Menses* will be suppressed. 2. Also Big-bellied Women are rarely to be purged, lest by the Irritation of the Medicine both upon the *Fetus* and *Uterus* an Abortion should ensue.

It is safest to purge such between the fourth and seventh Month, because then the *Fetus* is strongest, and the Womb is so much expanded as better to resist any Irritation.

But it is now grown a Custom to purge such Women at any Time, but with very gentle Medicines.

What Temperament is Purging most suitable to?

That which is hot and moist, joined with a fleshy Habit, but a dry and fleshy Habit does not bear it so well.

Is it not sometimes proper to give a Clyster before Purging?

In giving a Cathartick it is well to enquire whether the Belly is very costive, for by that it may happen that a Purge may occasion great Disorders in the Bowels; and therefore in such a Case a preparative Clyster would be very proper.

Whence is it known, how much, and how often it is proper to purge?

If the peccant Matter is but little, and the Strength

Strength good, once purging may be sufficient; but if the Strength be but low, whether the peccant Matter be little or much, it is best to do it at several Times; as also where the peccant Matter is in great Quantity, although the Strength is good. The Seat of the peccant Matter is also to be considered, whether it be in the extream Parts (as in the Gout) or if it be viscid and tough (as in an *Asthma*) then it is not proper to attempt its Discharge by one Dose, but by repeated Efforts.

How many Times?

As to the Times of Distempers wherein a Cathartick is best to be given, if we understand it universally, it is best to purge in the Declension, sometimes also in the Beginning; as it is our Practice in many Cases, before the Symptomes are too strong, and the Strength yet good, to take away the morbidick Matter.

But as to Particulars in Purging, I prefer the Time of Intermission, or Remission.

It may also be convenient in the very Paroxysm to give an Emetick or Cathartick; that is, when the peccant Matter is very turgid, or viscid, for then it is more easily thrown out.

Concerning Dog-Days we shall only say, that Necessity has no Law, nor is all that Time equally hot.

By what Part is the Matter to be purged off, and what is herein to be observed?

There are four Things to be taken Notice of concerning the Part.

R

1. *Whether*

1. *Whether it be accustomed to such Discharge?*
2. *Whether it be an open and free Passage?*
3. *Whether it be near enough to the Seat of the Humour, and has any Communication with it?*
4. *Whether it is naturally made for such an Office.*

E. G.

From whence it appears not to be proper to purge one Part by another that is distemper'd, unless that Part be further injured. The Bowels ought not to be purged by the Mouth, because the Stomach is not their proper excretory Passage, and likewise unaccustom'd thereunto.

Nor does it signify any thing that in *Dysenteries* where the Guts are croud'd, Purges are given with Success, because in that Case cathartick Particles are already in the Intestines, or at least continually supplied thither, whence it is better to drive them out, than with great Danger suffer them there to remain.

After the taking a Purge, what is to be next observed?

Not to sleep, if it be a gentle one, lest it hinder its Operation.

And much less if it be a strong one, and has any thing poisonous in its Composition, as *Colocynthis*, *Hellebor*, &c.

But if it be in a solid Form, as a *Bolus*, or especially in Pills, it is not amiss sometimes to sleep.

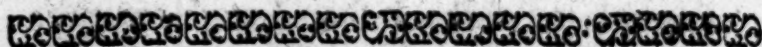
It is the best to drink Posset-drink, or thin Chicken Broth, after the Cathartick is dissolved, and begins to operate, to wash off the better any of its Reliques from the Stomach.

The

The Broath is not to have any Fat upon it, unless it be feared that the Medicine has any thing poisonous in it, or that it should work too much; otherwise, like all fat Substances it would blunt the Efficacy of the Medicine.

If a Person purges in the Morning, he should eat but little at Dinner, and that of something light, for the Stomach being relaxed for want of Spirits, and by the Influence of the Medicine, it cannot well digest any Food; but in the Evening, when all things go well again, he may sup heartily.

Paragoricks are frequently prescribed by our Physicians after Purges, that they might settle and compose the ruffled Spirits, but this Practice is not to be observed in all, for all *Paragoricks* astringe the Belly.



C H A P. XVI.

Of Alexipharmicks and Sudorifficks.

WHAT Commendations do you give of Sudorifficks?

They are much preferable to Catharticks, or Phlebotomy.

How do Sudorifficks or Dieureticks operate?

For the most they remove the morbidick Cause successfully, and without any Hurt. This we see in the Plague, Small-Pox, Spotted Feavers, and other malignant Distempers. If *Sudorifficks* can do so much in stubborn Diseases, what would they not do in slighter Disorders?

I know that many Physicians, who use little else but Purging, Bleeding, and Cooling in Feavers, say, that *Sudorifficks* are too hot to expect such great Advantages from them: But they own that they are not all equally hot, and although some are hot, yet they operate notwithstanding more mildly than Parges.

If they say that *Sudorifficks* only take away the *Serum*, and not the grosser Humours. I answer, That the Tubes and Glands of the Skin are as large as those of the Liver, Pancreas, and Intestines. by which the Discharge is made in Purging; and therefore that gross Humours may as well

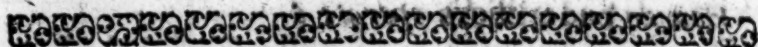
well be discharged by these, and especially *Sudorifficks* to attenuate such gross Humours.

How do Sudorifficks operate ?

By their Heat, and the Smallness of their Particles, they very much attenuate, cut, exagitate and rarefie the Mass of Blood, and along with themselves drive the Humours to the Tubules, and Pores of the Skin, where they condense either into little Drops, or fly off insensibly.

Is that Sweat good which is procured by many Cloaths ?

No, because it is too much forced, oppresses and weakens the Patient, as on the contrary, when it is raised by a *Sudoriffick* Medicine, it passes off without any Trouble.



C H A P. XVII.

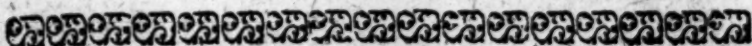
Of Dieureticks, and Urine Purgers.

WHAT think you of Dieureticks and Urine Purgers?

They carry off the Humours in the Blood, without any Inconveniencies, Danger, or considerable Commotion; whereby they are very excellent Medicines, and to be given at the Beginning almost of every Disease.

Have Dieureticks any Affinity with Sudorificks?

In their Operations in the Body they do not much differ from *Sudorificks*; they also attenuate gross Humours, dissolve Coagulations, and open Obstructions, and that by the Subtilty of their Parts. Hence many Things that raises Sweat, moves also by Urine, and whatsoever operates by Urine raises also Sweat, or at least encreases insensible Transpiration; and they differ from *Sudorificks* only in their less Activity.



C H A P. XVIII.

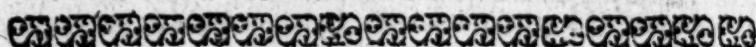
Of Things which expectorate.

WHAT do you understand by expectorating ?
Things which expectorate, or Bechicks,
are such Medicines as assist the Discharge of any
Thing from the Lungs.

How do they operate ?

Some work after this Manner ; by thickening
the Humours, when they are too thin, both that
they might the better be carried forward through
the Lungs, by the Contractions of the *Bronchus*,
and that they might be prevented from returning
again into the Blood ; and together with the *Saliva*
brought to the interior Membrane of the *Bron-*
chus, in order to moisten, and render it slippery.

Others work by this Means, by cutting and at-
tenuating the Humours when too thick, to faci-
lite their Passage through the Lungs, by yielding
to the Contraction of the *Bronchus* and also by
the Smallness of their Parts, they irritate the *Fi-*
bres of the *Bronchus* to Contraction, and thereby
an Expulsion of those Humours.



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C H A P. XIX.

Concerning Things working by Spittle, Phlegm-Cutters, and Errhines.

WHAT is the Use of those Medicines which work by Spittle? Of what Kind are they, and how do they operate?

They are frequently given to discharge the Blood from a Superfluity of *Serum*, but most of all from phlegmatick and viscid Humours, lurking in what Places soever. The chief of these is Quicksilver, and the Preparations made out of it, which by giving inwardly or administered outwardly by anointing, are found to throw out very viscid Humours, and such as are coagulated by Venereal Distempers; but they are to be used with great Caution.

There are such Medicines which by the Fineness of the Particles immediately insinuate themselves into the Glands and Blood, and in their Passage force open the Tubes and excretory Pores. By their Aptitude to Motion, and the Subtilty of their Parts, they divide and attenuate the viscid Humours, by which Means they are more easily brought to their proper Emunctories, and more easily pass them; where they are very proper in inveterate and stubborn Diseases, and generally where the Cause is slow and latent or in the Joints,

Do not those things which raise Spittle, sometimes Operate other ways?

They do not always, even Mercurials, discharge by the Salival Ducts, but often likewise by Urine, Sweat, and large Stools, as it is well known to such as undertake the Cure of the Venereal Disease.

But these Medicines are indeed more accustomed to Operate by the Salival Glands, unless some Error has been in Diet, or a strong Cathartick given, because the Salival Glands are more lax than others, and more particularly suited and accustomed to seporate viscid Humours.

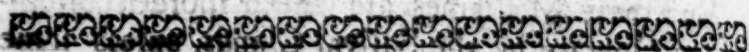
How do Phlegm-Cutters differ from those which move Spittle, and how do they Operate?

They differ in this, that they are not in the same manner applied outwardly; or taken inwardly; but are chewed or gargled, and they are much milder, nor act so deeply, notwithstanding which by their sharp Points, they will open and irritate the Glands in the Mouth, and break Viscidities.

How do Errhines Operate?

Errhines and Snuffs Operate almost in the same manner, and are, such as irritate, rarefie, and squeeze the Glands and spongy Flesh of the Nose, and so draw the pituitous Matter to be discharged by it, and facilitate its Excretion; and some which consist of the most subtile Parts may also get into the Brain and its Ventricles by the *Os cribrosum* and olfactory Nerves, and there attenuate the Humours, and draw them towards the Nose, but care must taken that by drawing these Humours too fast from the Brain, some worse Complaints are not occasioned than

than what they were given to remove; whereby sometimes they empty the Brain, and sometimes over charge it as I have already shown that the *Mucus* of the Nose does not altogether come from the Brain, but also from the internal Parts of the Nose.



CHAP. XX.

Of Sternutories.

WHAT are Sternutories, and how do they operate?

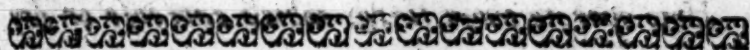
They are Medicines which violently irritate the inner Membrane of the Nose, much more than Errhines; by which a troublesome sensation arising in the olfactory Fibres, and all the neighbouring Parts, the Spirits in the Brain being put into a violent Motion, and the *Meninges* or Membranes of the Brain (whence the inner Membrane of the Nose is derived) being drawn into Consent; it happens that they, with the very substance of the Brain it self, are alternately contracted, and by the Explosion of the Spirits into the Nerves of the *Par Vagum*, the *Diaphragm*, and intercostal Muscles are drawn into Consent, and the *Thorax* violently contracted, until the irritating Particles are thrown off.

Whence violent Sternutatories sometimes does great Mischief; that is bring Convulsions, and Obstructions

structions of the Nerves, (*viz.* by fixing the Humours there) and sometimes Death.

What is their Use?

They are wont to be given in sleepey Cases, that the Spirits being stirred up and set in Motion, the Patient might be rendred wakeful; or that the Humours which had stopped up the Passages of the Spirits might be shaken off.



CHAP. XXI.

Of Medicines that move the Menses, Semen, Lust, the Milk, the Fætus, and Secundine.

WHAT are those things which promote the Menses and Semen? and by what means do they operate?

Those things which by the smalness of their Parts beat through the Vessels of the Womb, and open the Extremities of the Vessels in the Testicles, and in Men especially enlarge their Tubulous Substance, and so make more room for the Circulating Blood; or by exciting a greater Fermentati- on in the Blood, more forceably drive it into the Uterine and Spermatick Arteries.

Are those things which have such Effects hot and volatile?

Yes, and so at the same time give a certain Acrimony to the Blood, whereby the Spirits are more inordinately moved, and exite Lust; and besides which

which they also produce a greater Plenty of stimulating Seed.

But what are those things which abate the Menses, Semen and Lustful Desires?

What by their Astringency close up the Passages of the Blood to the Womb and Testes, or those things which lessen the Bloods Motion, and thereby cool it, and thicken, assuage, or dull the Spirits, of which kind are such that are cold and yeild but few Spirits.

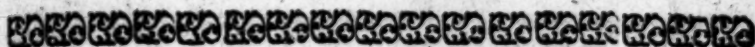
How operate those things which encrease or dry up the Milk?

They make the Chyle more diluted and thin, so that it passes more easily through the Milk Vessels both of the *Abdomen* and *Thorax*, and gets to the Breasts; such things are wont to be Liquid and Spirituous, especially what are taken inwardly; or outwardly applyed they relax and open the Glands of the Breasts, and the lacteal Tubes, that they might the better give way to the seperation of the Milk.

The contrary dry it up.

How do those things Act which expel, or repel the Fetus or Secundine?

Those things which promote their Discharge, do it by irritating with their Acrimony, the *Fetus* to kick and move about, so as to break the Secundines, or by stimulating the Womb, or more vehemently aggitating the Animal Spirits in the Brain, and driving them from thence in greater Plenty into its Fibres; it throws them into Convulsive Motions. But those things repel the *Fetus*, which allay those inordinate Excursions of the Spirits, and are endowed with an Astringent Quality.



C H A P. XXII.

Of Medicines which break the Stone, expell Wind, and kill Worms.

W A A T are those things which break the Stone, and how do they operate ?

Stone-breakers or Lithonripticks, are those which by their pointed and rigid Particles continually washing against it with the Urine, by degrees abraze and ware it away, at least so long as it is fabulous and yeilding ; afterwards they cannot do so.

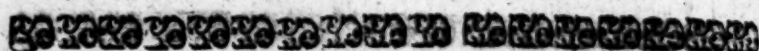
What are those things which expell Wind, and how do they do it ?

Whatsoever allays the Fermentation, which occasioned Wind, or by its subtilty discusses it, and makes it perspire through the Pores of that Part in which it is enclosed ; or lastly any thing which by its Viscidity lays hold upon and collects such Vapours together.

What are those things which kill Worms ?

What by its Bitterness or Saltness is destructive to them.

C H A P.



C H A P. XXII.

*Of such things as procure Sleep, and Asswage,
or Remove Pain.*

WHAT are those things which procure Sleep
and are stupifying, and how do they do it.

Of those things which procure Sleep and ease
Pain, some are mild as *Hypnoticks*, others stronger
as *Narcoticks* and *Stupifiers*; and they are such
as by some watery cold Juice, or by their Viscidity
load the Spirits in the Brain, or relax its fibrous
Compage, and fix the Spirits to one another, or
in some measure shut up the Passages of the
Spirits towards the Origine of the Nerves; for
by that means there cannot be a due Influx of
Spirits into the Organs of Sense, which in or-
der to Watching, or the Perception of Pain
ought to be in a due Tension, so that any
Motion impressed upon them, may be propa-
gated to the Seat of the Soul; and therefore
must such things dispose to Sleep and asswage
Pain.

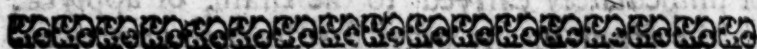
Thus *Opium*, and all its Preparations, and
whatsoever is of the like Nature, does operate,
as the smoak of a Lamp, Candle, or Coals,
Exhalations from some Caves, or Grotto's;
Streams of Beer working in a Cellar, or of
Wine; and other things either inspired with the
Breath,

Breath, or Drank; or whatsoever is mediately or immediately carried to the Brain, or applyed, to the Head or any other Part so as to be convey- ed thereto.

What are those things which assuage Pain, and how do they do it?

Asswagers of Pain or Anodynes, are properly such as by a pleasing and gentle Warmth, and by the softness of their Parts, in part discuss those Humours which give Pain, and partly correct them, and so remove or lessen, that violent and troublesome Motion of the Parts, in which Pain consisted.

CHAP.



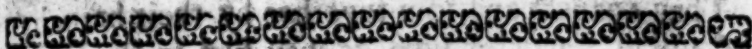
C H A P. XXIV.

Of Cordials.

WHAT are those things which raise the Spirits, how many ways do they do it, and of how many Kinds.

Whatsoever either by its fineness or volatility can be easily and soon turned into Spirits, or excite those already in the Brain and Nerves, which are heavy and torpid, and stir them up into brisker Motions, whether they are taken in by the Mouth, as Spirits of Wine, Cinnamon Water, &c. or applied to the Nose, as several Sweets, and Spirits, or rubb'd upon the Temples, or *Os Cribrosum*; or whether they get to the Spirits in the Brain by the way of the Blood, and set them in Motion; or lastly whether it sets them in Motion, by that which is made in the Nerves at the Place of Application, and by their Mediation communicated to the Brain. Those things also raise the Spirits which too much dissolve the Mass of Blood, and those things which constipate and enclose the Spirits therein, as sometimes things that are cold, as subacid, do, or such things which attenuate it when 'tis too firm and thick, and so not easily resolvable into Spirits, or that divide and break its Parts when 'tis as it were bound up with too much Acid, as Pearl, pretious Stones, Crabs Eyes, &c.

C H A P.



C H A P. XXV.

*Of the Operations of several other Medicines
which are used in Practice.*

HOW do Emollients Operate?

They something relax the Parts, by warming and moistening them, dissolve the Cohasions of the Humours, and in part dissipate them.

How things which Indurate?

By dissipating the fine and softer Particles (as in a *Schirrus* from the Application of things too hot) or by detaining and coagulating them, (as in an *Oedema* from too cold Application) they unite the Particles closer together.

How do Medicines Rarefie?

By evaporating Steams and Humours with a moderate Heat, they render the Pores of the Parts larger.

How operate Condensers, Astringents, and Openers?

Condensers check the Motions of the Particles by cold, so that in coming nearer to one another they cohere.

Astringents by some peculiar Conformation of their Parts, draw up and constringe the Parts of the Body nearer to one another, as into little Wedges or Chords, as they are generally cold.

Openers, by their pointed and slender Particles enter into the Parts of the Body, and by breaking the Viscid Humours therein, they open their Pores: and such are generally as well hot as cold.

S

How

How do incrassating Medicines Operate?

They connect and join together by their branchy and viscid Particles such as they find in the Body more liquid and fluxile, and so bring them to a closer Consistence.

These are wont to be cold.

How do attenuating and inciding Medicines operate?

By cutting and dividing with their points thick and viscid Humours.

How do Emplasticks work?

By their yielding, flexible, and rawmous Particles they easily stick to the Parts of the Body, entangle them, and close the Pores; and so by shutting in the *Effluvia*, hasten Suppuration.

How operate Attemperating Medicines?

Attemperatory, or otherwise called *Epicerafasticks*, are next to Emplasticks; by their salt and flexible Particles they entangle and wrap up some which they met with more sharp and acrimonious; or if they do not consist of such salt and flexible Particles, yet at least as they are such as will readily admit others more sharp and pointed into their Pores, they destroy them, and along with themselves, carry them out of the Body; or otherwise by the Asperity and Solidity of their Particles they grind, break, and wear off their Points, as Crabs Eyes, Corral, Shells, and other hard alcalious Bodies, which correct Accids.

How operate Deterfives?

By their hard, rough, and sharp Particles they abrade and brush off Filth from the Passages and Superficies of the Body wherein it sticks.

How Repellers?

By their Astringeness and Coldness they check the

Flux

Flux and heat of the Humours, and by closing up the Passages and Pores of the Parts, they repel the flowing Humours, and so lessen the Tumour.

Attracters how?

To Attracters belong, Pyroticks and Veficatories, of which we have spoke before. By the great Heat and Subtilty of their Particles, they open the Pores of any Part whereunto they are applyed, rarefie the inclosed Juices, and thrust them outwards, by means of a lesser Resistance which is there made; and sometimes they redden and swell the Part; and at others by stirring up so many Humours and Steams, that are too gross to penetrate the Cuticle, they lift it up into a Bladder; nay by these means frequently Needles are drawn out of the Flesh.

How Cathareticks?

Of the same kind are those which take off Hair. By their pointed and cutting Particles, they open the Pores of any Part, and exagitate, attenuate, and dissipate insensibly the Humours contained therein.

How Ripeners?

By their moderate Heat and Moisture, and from their fitness to close the Pores of any Part and stick in them, they prevent the Efflux of Spirits, and so by encreasing the Heat of the Part, they Suppurate the Blood which is there extravasated.

How stoppers of Blood?

Stipticks operate by their Astringency, Refrigeration, and drying; or by their Aptitude to stick and bind together, they shut up the gaping Vessels, or lessen the vehement Motion of the Blood and Spirits. After the latter way those things operate which thicken the Blood, as Opiates, or cold Water applyed to the Nostrils, Testicles, or any other Part.

How operate Sarcoticks; i.e. such as produce Flesh?

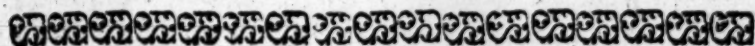
By their moderate warmth and covering, they preserve the Heat of the Parts, and by removing the Filth from the Wounds and Ulcers, they cause a greater Influx of nutritive Juice into any Part, and forward its Conversion into the same Substance.

How do glutinating Medicines work?

Those which dry most deterge least, but by astringing they rather close up the Lips of a fresh Wound: So those called Vulneraries, because they heal Wounds and Bruises, being given in Decoctions, or Potions, or any other Form, they attenuate the Body by some of their Particles, so that it flows the better into the affected Part; and they draw off the sharpest Parts of the *Serum*, by the Kidneys or otherwise, and by some other of their Particles they something astringe and deterge. So Cicatrisers, and Epuloticks, by astringing, contracting, and drying, in Time close up an Ulcer. Lastly, such means as produce a *Callus*, by drying and astringing, convert the Nourishment of the Bones into the Substance which is so called. Those which take off Eschars, do it by softening and warming that hardened Substance 'till it gives way and disappears.

How do things cure Burns?

By opening the Pores by their Warmth and Moisture, they draw out the serous and acrid Humours; or because they have some peculiar Figure in their Constituent Particles, by which they check the vehement Motion of the subtile Matter in the burnt Part, or at least that by drying and detarging, they heal up the Wound.



C H A P. XXVII.

Of Medicines peculiar to particular Parts and Diseases, and how they operate.

THAT there may be some Medicines which are more suited to one Part than another, is not to be questioned; for one by its peculiar Disposition of Particles, may be admitted easily into the Pores of some Parts and not into others; so also one by its greater Activity, may have the Effect upon one Part which it cannot have upon another.

So in like manner it cannot be doubted but that one Medicine may be better suited to drive out one Distemper than another; hence Medicines are ranked under several Heads, and called either,

Cephalicks, for the Head.

Ophthalmicks, for the Eyes.

Oticks, for Hearing.

Arthriticks, for the Joints.

Pneumonicks, for the Lungs.

Cardiacks, for the Heart.

Nephriticks, for the Kidneys.

Cysticks, for the Bladder.

Hepaticks.

Stomachicks.

Uterine.

Uterine,
Pneumonicks,
Nephriticks,
Stomachicks,
Hepaticks,
Alexipharmicks,
Antiepilepticks.
Antapoplecticks.
Antefibriles, &c.

But here it is to be taken Notice that these Medicines are not so distinct, but that they do sometimes correspond in their Effects; so *Cephalicks* are in a great measure *Hystericks*, and *e contra*; because hysterical Affections are in a great part convulsive, being produced by an inordinate Motion of the Spirits.

So also *Cardiacks* are also *Cephalicks*, because those Things which comfort the Heart, also strengthen the Brain.

And on the contrary, because the Heart and Brain are inseparably assisted by the same means. In the mean time, *Cephalicks* by their volatile Particles excite and renew the animal Spirits in the Brain, or restrain their inordinate Motions, or open the obstructed Nerves.

Cardiacks, by their fine and volatile Particles occasion a brisker Rarefaction of Blood in the Heart, and an Exhalation of its Spirits, as the precious Stones do, and Pearls, &c. as they correct the Acid that thickens the Blood; or as they
confine

confine and conpissate the Spirits when too much scattered.

Pneumonicks, by their soft and yielding Particles lubricate the *Bronchia*, and with others more fine and cutting dissolve the Viscidities therein, and by stimulating the interior Membrane they bring it into Contraction and Excretion.

Nepbriticks, *Cysticks*, *Dieureticks*, and *Lithon-
tripticks*, (of which above) by their soft and gently deterging Particles they answer their Intentions; and are also helpful in a Heat and Sharpness of Urine.

Stomachicks by their cutting Particles, separate and dissolve the Crudities at Stomach, or by some Restriction of its Fibers gives it Strength, by which it the better presses upon, and digests its Contents.

Hepaticks and *Spleniticks*, not only by their small cutting, and absterfive Particles, readily get into the Vessels of the Liver and Spleen, and break the Crudities they find therein; but moreover, by being impregnated with alkaline Salts, they every way dissolve the Mass of Blood and destroy the Accidities therein.

Alexipharmicks are such as cure the Plague and other poisonous and malignant Diseases, and they do it by blunting, entangling, or expelling those sharp and corrosive Points of the Poison, with which the Blood was either coagulated, or fused, and with which the Solids are corroded; or by
attenuating

attenuating that volatile *Gluten*, by which these Spirits are fixed in the Brain, according to the Nature of the infecting Poison. Whence they may be hot, cold, inraffating, attenuating, &c.

Antapoplecticks, operate by the Smallness and Volatility of their Parts, by which impressing a greater Motion upon the Spirits in the Brain, and by opening the Pores of the Nerves, and vellicating the Fibres, they excite and strengthen the Brain.

How operate Antipelepricks?

By vellicating the Origine of the Nerves, they correct the Acrimony of the Spirits, or call them back from their inordinate Explosions into the Nerves, and set them into more calm and regular Motions.

APPEN.



A P P E N D I X.



Having gone through the
Grounds of Physick, and
examin'd into them after
the foregoing Manner, the
next you have to do is to
apply those Rules to
the Cure of Distempers,
whereby I shall be con-
vinced of your Proficien-
cy, and be the more encourag'd concerning your
future Progress; begin therefore with an *Apo-
plexy*.

*Q. 1. When may a Person be said to have an
Apoplexy?*

When of a sudden the Actions of all the Sen-
ses, both internal and external, and all voluntary
Motion is taken away; the Pulse yet continuing
something strong, and Respiration very difficult.

What do you do in such a Case?

To prevent the Encrease of those Symptoms,
immediately

immediately have Recourse to efficacious Remedies.

Instance in some of the necessary Prescriptions, and give a Reason why they are more proper than any other.

That I will.

1. Blood must be immediately taken away to the Quantity of twelve Ounces or more.
2. Give the following Vomit, observing what's usual.

℞ Infusion. Croc. metallor. ʒj.

Mel. Scyllit. ʒss

Aq. Cinnam. fort. ʒiij.

3. After the Operation of the Vomit, may be given the following Bolus every fix Hours.

℞ Conser. Anth. ʒss

Pul. e Chel. cancror. C. ʒj.

Castor. rus. gr. viij.

Sal. C. C. gr. v.

Syr. de Peonia q. s. m. f. Bolus sexta quaq. hora sum. superbib. cochl. iv. vel v. Fulap. Seq.

4. *℞ Aq. Rut. Ceras. nigr. Lat. alxet.*

Aq. Paonia Bryonia C. a ʒiss.

Syr. de Paonia C. q. s. m. f. Ful.

5. A large Blister must be raised between the Shoulders.

6. *℞ Sal. Vol. C. C. ʒiiss.* let it be kept in a Phial to be smelled to often.

What do you observe in the Cure of this Disease?

What is observable in all other, that a general Method cannot be prescribed. For according to the Difference of Causes, and other Circumstances,

ces, the Cure must be adapted. *See the Grounds of Physick concerning the Loss of Motion in an Apoplexy.*

Q. How does Blood-Letting, Vomiting, and Blistering, operate in this Case?

By those Evacuations, the Pressure in the Brain will be lessened, and a Revulsion made from those Parts: A Physician may depend upon all Evacuations to be for his purpose.

In the Cure of this Disease consult the *Grounds of Physick* under the proper Heads.

Q. Does not an Apoplexy arise from several Causes?

Yes.

Q. Recite them in their Order.

1. The natural Make of the Body.

A large Head.

A short Neck.

The Body thick and fat.

A plethorick Habit.

2. Whatsoever so alters the Blood, Serum, and Spirits, so that they cannot freely circulate thro' the Arteries of the Brain, but obstruct them.

3. Whatsoever presses so upon the Arteries, or Nerves in the Brain, so as to disturb the free Passage of the Blood or Spirits: This arises from too high a Diet, or Excess in Drinking, or Exercise.

4. This Distemper as raised to its Height, by Age, Temperament, peculiar Make, as also by the Aggravations of the Symptoms, an absolute Destruction of Sense and Motion, hard Breathing, with Snorting, and great Quantities of viscid Froth about the Mouth.

5. The

5. The Slightness of this Disease appears from the Lightness, or Absence of the forementioned Symptoms.

For the Evening, the First Day.

WHAT do you order over Night ?
These following.

R Sal. Volat. C. C. 3ss.

Divid. in duas partes, & sumat unam statim, alteram circa mediam Noctem.

R Emplastr. cephalic. (cum dupl. Euphorb.)
Part. iij.

Galb. colat. p. j.

Ol. Succini gut. viij.

m. f. Empl. suppedan. applic. hora noct.

Let him continue the Use of the Bolus's and Cephalick Juleps.

Let there be in readiness Vescicatories for the Arms.

R Pulv. comit. war. ʒij.

Cast. ʒss.

Sal. Succini gr. lv.

Syr. de Spina cerv. q. s. m. f. Bolus.

For

For the Morning, the Second Day.

WHAT will you do with your Patient the next Morning?

I find the Symptoms much abated, and therefore order thus,

℞ Decoll. p. Clyster ℥xij.

Benedict. laxat. ℥ss.

Specier. Hier. ℥i.

Ol. Ruta ℥ij.

M. f. Enema hora quarta pomer. injiciend.

Let the foregoing Remedies be repeated.

Second Prescription, Second Day.

HOW do you go on in the Evening?

After this manner.

℞. Diagrid. gr. xij.

Cast ℥ss.

Sal. Succini gr. iij.

Syr. e Spin. cer. q. s. m. f. Bolus.

Let this be taken presently, or early the next Morning, unless the Patient has a Stool first, and let him take fifteen Drops of the Cephalick Spirits, in a Draught of the Julep every six Hours.

Third

Third Day, First Prescription.

WHAT will you do the next Day?

B. Decoct. carminat. ℥xij.

Infus. croc. metal. ℥iss.

Ol. Ruta ℥ij.

Spec. Hier. Picr ℥j.

M. f. Enema injiciend. hora 4ta pomerid.

Let him continue the Use of the *Bolus* as before, and the *Cephalick Julep* every six Hours, and in the Intervals take fifteen Grains of *Sal C.C.* in some of the *Julep* every six Hours for three times.

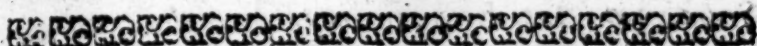
And thus I proceed, making such Alterations as are required, till the Patient be entirely recovered.

Thus by frequent and strong *Hydragogues* a great part of the extravasated *Lympha*, will be drawn down to the Bowels, and the rest dissipated by large *Vescitatories*, continued long open.

To prevent a Relapse, I order corroborating Medicines.

Let the Patient abstain for some time from strong Drinks, and use a Diet that is simple and of easy Digestion, and so will he recover entirely his Health.

Of

*Of an Epilepsy.*

WHAT is an Epilepsy?

When a Person suddenly falls down, with the Loss of all his Senses, and a great involuntary Tension of the Muscles, but has clear Intermissions, and again fresh Fits.

This Distemper appears in a very different manner, sometimes it is so strange, that it is by many ascribed to an immediate Hand of God, or to evil Spirits, Witchcraft, and such like supernatural Causes.

There is hardly any Posture, Walking, or Gesticulation, which it does not some time or other throw Persons into.

But all these Alterations are concern'd only in changing the Motions of some of the moveable Parts, and therefore they only affect the Contraction of the Muscles; whence they come to be differently supply'd with the nervous Juice; and hence there is a different Expression of it from the common Sensory into the Nerves, and consequently very different Causes in the Brain, producing those different Expressions: All which are best understood from a perfect History of the Disease, which would be enough to make another Volume, wherefore, for Brevity sake, I must pass over them transiently.

The

The *Extractum Mandragoræ* is the celebrated *Sedativum Anti-Epilepticum* of *Knifelius*; however it is certainly a very good Ingredient.

℞ *Pulv. de Guttet. gr. vj.*

Confell. de Hyacinth. gr. vij.

Conf. Alkerm. ℥ss.

Syr. Crocin. ℥ss.

M. f. Bolus.

Tertia quaq; hora repetand. detur cochl. ful. seq. superb. cochl. iij.

℞ *Aq. Ceras. nigr. ℥iiij.*

Pæoniæ. C.

Theriac. a ℥ss.

Margarit. præparat. ℥ss.

Sach. alb. ℥iij.

M. F. Fulep.

Let a Plaister of Gum Caranne ℥j.

Ol. macis per Expres. ℥j.

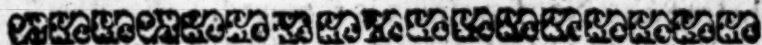
Ol. baccar. Junip. iv.

be applied to the Belly.

This Patient I suppose to be eight Months old.

These Medicaments do obtund, temperate, and break the Acids, and open Obstructions. — and that without raising any uncommon Heat.

Of



Of a Nauseousness.

What is a Nauseousness?

It is a repeated reaching to Vomit.

How is to be stopped?

By the use of Acids, Water drinking. &c.

R. Aq. Rosar. ℥iiij.

Sal. absinth. ℥i.

Syr. de Limon. ℥j.

Let it be taken in two Doses, and the Effect will be seen. See *Grounds of Physick; of Meats and Drinks.*

Likewise a gentle Purge may be given, and also such austere Accids as strengthen the Stomach; or if it does not give way to such things, give an Emetick.

If it arises from a viscid thick Matter, which as it floats about the Stomach, vellicates its Coats, it is to be removed by deluting, inciding and attenuating.

If it arises from an Inflammation of any of the neighbouring Parts, it will not cease, till they are first cured.

What do you gather from hence?

From hence we may see (in accute Diseases attended with a Nausea) why a Purge or an Emetick is of such Advantage; hence we see likewise the Reason why those in Feavers cover Water, Accids, Garden Fruits, and cold Things.

T

Why

Why do not Medicines prove of any Service before the Nauseousness is removed.

But such Diseases often go off suddenly, after an uncommon manner, with a wonderful Appetite.

For Purges.

R. Tamarin. ℥j.

Folior. Senna ℥iij.

Sem. Anis. foenic. an. ℥j.

Cinamom. ℥ss.

Coq. in aqua fontan. leni ebullitione.

Colatur ℥iij.

Adde mann. Calabrin. depurat. ℥vj.

Succ. Lemon. parum, M.

Or,

R. Mann. ℥iss.

Ol. amygd. d. ℥j.

Falapp. pulv. ℥j.

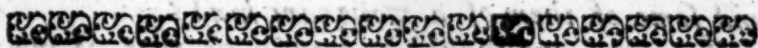
All these taken in Chicken-Broth, purge very well at Night.

R. Confect. Fracast. ℥ij.

Accet. accerrimi ℥iss.

Sacchar. q. s. sumat in Lello.

of



Of an Obstruction.

W*hat is an Obstruction?*

It is the stopping a Canal, so as to hinder its Liquid from passing through it, whether it be vital, sound, or distemper'd, and arises from an Excess in the Consistence of the circulating Fluid, above the Capacity of the circulating Canal.

What Method of Cure does it require?

Things which stimulate, strengthen, and provoke a brisker Motion in all parts.

Moreover, as a Fluid may grow thicker from various and different Causes, so as occasion requires, there should be made use of very different Remedies, and a different Method of Cure; which Diversity of Causes, when the real one is discover'd, it will point out the most natural and proper way of Cure.

What does Bleeding do in an Obstruction?

It lessens the distended Causes.

What do warm aqueous Liquors in such Cases?

They dilute, whether drank, injected, or applied outwardly.

What do Soap-Medicines in Obstructions?

Soap made of an Alkali and Oil, does attenuate.

But whereas a Liquid when it is extravasated, or stagnant is not penetrable, and does make Ob-

struitions; do not many Diseases arise from thence and some of them of a malignant kind?

Yes truly, we should be certain of that, if we consider, 1st, That there were preceeding Causes (which are observable enough). 2. That something may turn up contrary to those. And 3dly, where we can plainly discern the Effect.

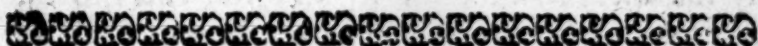
How otherwise is an Obstruction to be cured?

1. By driving back the obstructed Matter into the larger Vessels. 2. By resolving it. 3. By relaxing the Vessels. 4. By Suppuration.

What most dislodges the obstructed Matter, and drives it back, is sudden and large Bleeding, whereby the Vessels are reversly contracted.

A prudent Physician, with due regard to the Causes, knows how to do any thing else that is required.

Of



Of the Diseases of Virgins.

WHAT kind of Remedies do the Diseases of Virgins require?

I say, in order to answer methodically, that there are some Diseases peculiar to Virgins.

1. For during that Space in which a Female is growing to her full size, there is more Blood made than the Vessels can contain, and therefore it flows out of the Uterine Arteries, and is called the *Menses*.

2. If the Body remains in the first Case, and the Blood is retained, then there arises a *Plethora*, Sluggishness, Weight, Paleness; a Pain in the Loins and Groin, and a general Depravity of all the Functions, natural, vital, and animal; all which may be accounted for from too great a Pressure of the Vessels, and the Fluids abounding in Quantity and Motion.

3. The Blood being in this manner crouded up, sometimes it finds Passages different from what the *Menses* ought to flow by; as Physicians have known it to break through the Eyes, Ears, Nose, Gums, Salival Glands, Oesophagus, Belly, Bladder, Breast, Skin, Wounds and Ulcers.

4. And sometimes from hence all the *Viscera* are spoiled, and almost an infinite Number of Diseases arise, either from growing Putrefactions, or the Injuries done to the Vessels.

T 3

5. This

5. This Disease is known, 1. By the Age. 2. By the Increase of Bulk in a Person full grown; 3. From a *Plethora*, 4. and by the Signs of those Diseases which arise from thence.

6. The Remedies are to be varied according to the Difference of Causes.

7. Amongst which, sometimes the Skill of a Chirurgeon is required, to make an Apperture with a proper Instrument.

8. Otherwise this Stagnation is remedied, 1. By Fomentation, and rubbing of the Feet. 2. By the opening a Vein in the Foot. 3. By purging the Womb. 4. By Emmenagogues. 5. By Plasters, Frictions and Liniments. 6. By strengthening the weaken'd Vessels with Chalybeates and Astringents.

The Cause of this Distemper being removed, all arising therefrom go off a course. It is either cured by Nature, or by the Cure of some Disease that bears the nearest Resemblance to it.

of

Of a Diarrhæa.

WHAT is there particular in a Diarrhæa?

℞ Mastich. ℥iij

Macis ℥j.

Coq. in vin. rubr. ℥ss.

Vase clauso, add. colatur. aq. Cinamom. ℥j.

Et succ. Cydoneorum parum F. decoctum Stomachicū contra alvi fluxum.

For an Infant of two Years old.

℞ Spec. pro confect. hyacinth. ℥ss.

Margarit. ℥j.

M. F. pul. no. viii.

Sumat jam 6ta quaque hora superbib. haust. Julap. seq.

℞ Aq. Meliss. borrag. cerassor. nigror. an. ℥iss.

Poen. comp. ℥j.

Aq. Cardiac. ℥ss.

Margat. preparat. ℥ij.

Sacchar. cristall. albiss. ℥iij.

M. cap. C. ii.

In intervallis.

℞ Rad. consclid. maj. ℥ij.

Flor. Ros. rubr. M. ij.

Coq. in s. q. lact. vaccin. ad ℥ij.

F. colatura cujus sum ℥iv.

Cui ad Vitell. Ovi No. j.

Confect. Fracastor. ℥ij.

M. F. Clyster. injiciatur hora quarta pomerid.

At last.

R. Folior. absinth. flor. chamomill. an. M. ij.

*Cinamom. accut. caryophyllor nuc. Muschat. an
℥ss.*

Infund. in spir. Vin. opt. ℥ij.

*Incolatur. q. s. calefact. imbuatur panno Wal-
lic. & applicetur calide abdomini infantis.*

Or,

R. Consell. Fracastor ℥ij.

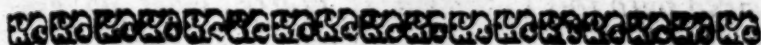
Rhubarb. tost. ℥ij.

Nuc. Moschat. ℥ss.

Oc. cancr. ℥j.

*Syrup. cidonior. q. s. M. F. Eleſtuar. pro re
nata. Hic incipe a posteriori.*

Of

*Of a Dropsy.*

WHAT is a Dropsy?

When the watery *Serum* is got out of the Vessels, and lodged in other Receptacles, or stagnating in the Vessels distends them, then it is called a Dropsy.

What is a Hydrocephalus (a Dropsy in the Head)?

It is a Collection between the outward Teguments, and sometimes between them and the Skull it self; between the Skull and the Membranes of the Brain; between these Membranes themselves and their Duplicatures; between these and the Brain; between the *Plicæ*, or Convolutions of the Brain; and sometimes in its very Cavities, and yet without sudden Death.

Is the latter sort curable?

No; the other is conquered by slight Cauteries, by Terebration, by Punctures, dexterously managed, with the Help of *Hydragogues*, and corroborating Medicines internally, or sometimes they are cured by external Discutients.

What do you observe in a Dropsy of the Breast?

Water may be thence collected from several Parts; it is attended with the same Symptoms almost as an *Empyema*, but there is a difference in the antecedent Cause. This is cured by a *Paracentesis*, giving such things at the same time as remove the Cause.

But

But if a Vomica Pulmonum, and Hydatides are joined with this Collection of Water, what do you do then?

This Disease is very difficult to be known and cured, unless some other Symptoms put us upon an accidental Cure of it.

What do you do in a Bronchocele?

When by any means Water happens to stagnate in the anterior and most conspicuous Part of the *Aspera arteria*, it often resembles a *Bronchocele*, and as Authors direct, is easie to be known, and cured with Difficulty.

Are not the Ovaria of Women sometimes affected with a peculiar kind of Dropsy?

Yes, but never to be cured. I have seen a great many Women barren and old, who have died of such a Distemper.

Is there not a Dropsy sometimes in the Womb it self?

Yes, in its very Cavity, its innermost Orifice being clos'd up, there is sometimes collected such a Quantity of Water that will lift up the whole *Abdomen*, and resemble an *Ascites*: This Disease likewise is very difficult to know, by the false Appearances of Gravitation; but it is curable by relaxing the Uterine Orifice, by Fomentations and Steams.

What is an Anasarca?

When the Water ouzes out into and stagnates in the *Membrana adiposa*, an Habit of the whole Body, particularly about the *Abdomen* and *Scro- lum*.

What is an Ascites, and a Tympanites?

When this same Water is collected in the Du-
plicature

plication of the *Peritoneum*, in the Cavity of the *Abdomen*, or in the enlarged Cavities of the Glands, and the Vessels contained in the lower Belly, then it is called an *Ascites*; and a *Tympanites*, when the same Region is distended by rarefied Vapours, or from Water, Pus, Ichor, or Air pent up, and putrefying there.

What further?

The Feet will smell especially in an Evening, the Tumour will encrease; then follows a Shortness of Breath, Thirst, Heaviness, Numbness, Costiveness, little Urine, a slow Fever, dry Skin, Swelling in the *Scrotum*, *Hydatides*, Ulcers, Gangrens, Bleeding at the Nose, Mortification of the *Viscera*, and Death.

How is a Dropsy to be cured?

We must find a free Passage for the Water, and thereby draw it out of the Cavities where it is lodged. And the weakened Vessels must be restored by Chalybeates, Strengtheners and Restringtons.

Read the *Pharm. Batean.* and that of Dr. Fuller.

In a fresh Dropsie use the *Paracenthesis*, &c,

R Gut. Gamb.

Diagrid.

Resin. Jal.

Mercur. dul. a. gr. xv.

Crem. Tart. ʒj.

Syrup. Spin. cer. q. s.

N. F. Bol. N°. ij. pro duabus dosibus.

• Rad.

℞ Rad. Valerian.

Iri Nost.

Ebul. rec. a ʒss.

Rad. Raphan. ʒvi.

Fol. Senne ʒss.

Mecboacan. ʒij.

Ciner. Genist. ʒiiij.

*Stent in Infusione per horas 49. in loco frigido
cum Vini Rhenan. lii.*

Colat. adde Sal Tart. ʒj.

Sal. Volat. Tart. Sennert. ʒiiij.

Ol. Cham. chym. ʒj.

*Infill. ol. Saccharo, misceatur in mortario & sic
addatur reliquis.*

The Dose is half a Pint, to be drank every
Morning, or every other Morning, according to
the Strength of the Patient.

℞ Cassamum. ver. ʒj.

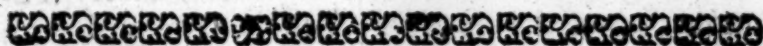
Sal. Viperarum ʒss.

Serpent. Virg. gr. v.

cum Syrup. Succor. Kermes q. s.

M. F. Bolus, to be taken every Night to sweat.

Of



Of the French Pox.

PRAT describe the French Pox, its Signs, and Method of Cure?

I will do it, according to my Capacity.

I say, this Disease is contagiously propagated by Generation, Sweats and Strains.

It shews it self first in that Part which is first infected.

The infected Part is known first by a Matter attended with Heat and a gentle Inflammation, with a whiteish Pustule, Scurff, Erofion, and Ouzings, hardly curable by any means.

Hence increasing, it first spreads it self, most outwardly, with the like ulcerous Pustules, thence it gets into the inward Parts, as the Lips, Gums, Palate, Tongue, Jaws, Nose, Brain, Lungs, Liver, Spleen, Womb, &c.

Which Parts ouze out a mucose Matter, of a greenish Colour, which erodes the Flesh, rather spreading upon the Surface than entring deep into the Substance.

On the outward part of the *Penis*, it is called a *Shanker*, in the inner part a *Gonorrhœa*; and in the Neck of the Womb the *Fluor albus*.

In Men, there is often so great an Inflammation of the *Penis*, that it soon turns to a Gangrene.

Hence

Hence the Stones swell, and are painful, often inclining to ulcerate, with an Inflammatory Tumour upon the seminal Vessels, attended with Carbuncles and a Strangury, with an Erosion of the Urethra, Prostate, and seminal Vessels; the same happens to Women.

Hence it spreads into the Limbs, with Night Pains in the Joints, and a Difficulty of bending them.

Hence into the Cartilagenous Parts, with an Erosion of the Nose and Palate.

Hence seizing the Bones, it rots them, especially the Skull.

Whence the covering Parts break out into Appearances of the worst kind.

Hence also it lifts them up into hard Tophi, with a certain, but obscure Pain.

How are these to be cured?

A Gonorrhœa may be cured by a Bath. E. G.

Æ Herb. virid. Malv.

Parietar.

Artiplic.

Bismalva a M. iifs.

Flor. Cham. M. ifs.

Melilot.

Aneth. a Miss.

Sem. Lini contus. ℥iv.

Capitis Ovis mactati cum Lana confract. demptis Oculis, Lingua & Cerebro.

Coq. in f. q. aq. Fontan. f. semicup.

2. By Fomentation. E. G.

℞ Rad. Raphan.

Grammini.

Petroselin. a ʒj.

Herb. Cheresol.

Fenic.

Gramin.

Petroselin a Mijfs.

Sem. Apii.

Fenicul.

Petrosel.

Carui.

Anif.

Bacchor. Junipi. cont. a ʒvj.

ʒ. Sacculi No. ij.

Aq. & Vin. a P. E. incoquend. & Vaginae Tabis
& partibus genetalibus alternatim applicentur.

3. By Injection.

℞ Decoſt. Mercur. dul. q. ſ.

Mellis, q. ſ.

For an Injection in a Gonorrhœa.

4. By often purging with Mercurials.

℞ Extr. Rudij gr. xv.

Mercur. d. ʒj.

Extraſt. Troch. alband. gr. ijfs.

Vel gr. iij.

Effent. Croc. & Terebinth. Ven. a q. ſ. ſ. Pel.

5. By Emulſions.

℞ Ol. Amygd. N^o viij.

Sem. Melon.

Pepon.

Papav. alb. a ʒſs.

Aq. Hord. ʒjfs.

Cum ſ. q. Sacch. cand. ſ. ſ. a Emnl.

6. By

6. By Balsamicks.

℞ *Terebinth. de Chio* ʒj.

Succini alb.

Bals. Peruvian.

Capiv. a ʒss.

Glycyrr. pulv. q. s. M. F. Pil. mediocr. Mag. nitud. vel,

℞ *Bals. Capiv.* ʒliij.

Vitel. Ovor. N° ij.

Syr. Bals.

Vel Alb ʒij

Vin. alb ℥. q. m.

7. By abstaining from too high a Diet, which stimulates to Venery, and using the contrary.

8. By persisting in the Means of Cure, until nothing further distils from the *Penis*, or discovers it self in the Urine.

The Inflammation of the *Penis* is to be removed by an Anodyne Cataplasm, and a discussing emollient Fomentation.

The Venereal *Bubo's* are taken away, by dissipating and suppurating, with Specifick Plaisters; if these do not succeed, they must be opened and cleansed.

The Swelling of the Stones is to be fomented with the like things; if Blood abounds, some must be taken away by the Arm; and a proper Plaister apply'd to the *Scrotum*, as *Empl. de Ranis cum Mercurio*, &c. until it is reduced to its natural Bigness.

Pustules and Shankers are to be eat off with Mercurials, the rest will yield to easier Means.

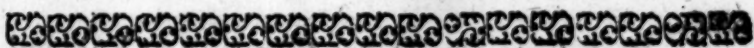
But all the while observe the Use of the inward Medicines before prescribed, N° 1.—8.

The

The *Fluor Albus* in Women is cured by 1, 2, 3. and particularly by Fomentations.

But when the Pustules are spread every where, with Pains in the Joints in the Night, and large *Buboes*, then a Salivation is necessary.

Further concerning these Matters, consult the *Grounds of Physick* about *Contagious Distempers*.



Of Fevers in general.

1. **A** Fever, which comes next to be explain'd, is a Disease the most frequent, and inseparable from Inflammations; the Parent of many other Diseases, and frequently of Death. Often indeed it is a Means of Preservation from many other Distempers.

2. As the Nature of it is very abstruse, great care is to be taken in its Explication.

3. There are such number of Symptoms attending it, that frequently give occasion of Mistakes herein, without some of which, a Person cannot properly be said to be in a Fever.

4. That such Mistakes may be avoided, it is necessary to point out such certain Appearances (3) which are necessarily Attendants on a Fevers; and which being manifest, a Physician is always certain that there is a Fever, and when absent, he may be as confident there is none.

5. Upon which Discovery and Consideration (4) the particular Nature of a Fever may more easily be known.

6. In every Feaver there is a Rigidity of the Skin, (5) a quick Pulse and Heat, which differ in Degree according to the Time of the Feaver.

7. In that Fever where these three (6) pass over soon, and with some Danger, it is called *acute*.

8. Where they come on slowly, either with, or without Hazard, that is called a *Slow Feaver*.

9. Both sorts (7, 8) are Common or Epidemical, or particular to this or that Person.

10. Those are termed acute feaverish Distempers that are attended with (7). Those attended with (8), chronical Feaverish Diseases.

11. The Explanation of all which (10) depends upon a previous Knowledge of the Nature of the Feaver.

12. Which is to be had from a Consideration of the three Symptoms (6).

13. Which do indeed attend every Feaver, but the Frequency of Pulse remains the whole Time, from the first Attack to its Decrease; and by that only can a Physician judge of the Feaver's Continuance.

14. Therefore whatsoever a Physician understands of a Feaver, he comes by it all from the Frequency of the Pulse.

15. The proximate Cause therefore of that (14.) is so too of the Feaver, and therefore first to be enquired into.

16. Therefore a more frequent Contraction of the Heart.

17. Therefore the reciprocal Impulse of the Blood and nervous Juice into the Muscles and Ven-

Ventricles of the Heart will be more frequent.

18. Almost every Feaver hitherto observed, that arises from an internal Cause, begins first with a Sense of Cold, Shivering, Stiffness of the Hair, which is greater, lesser, shorter, longer, internal or external, according to the Diversity of the Subject, and Cause of the Feaver it self.

19. During which time (18) the Pulse is quick, small, and sometimes intermitting, and a Paleness, Cold, Stiffness, Trembling and Numbness seizes the extream Parts.

20. Whence it appears that at the same time, the Blood and Juices may stagnate at the Extremities, and yet the Force (17) contracting the Heart continue.

21. From which (20) the Cause of all the then urgent Symptoms may be understood.

22. In every Feaver, after (18, 19, 20) are over, there arises a Heat, great or less, short or long, internal, external or both, according to the Diversity of the Disease.

23. Which (22) when it is consequent upon the above-mentioned Feaver, will appear, rather the Effect than its Cause.

24. And therefore a more frequent Contraction of the Heart, with an encreased Resistance at the Capillaries, is all that necessarily goes into the Idea of an accute Feaver.

25. But both of these (24) may be brought about in a living Body, by almost an infinite Number and Variety of Causes; and that either together or separately; and one being produced, the other soon follows.

26 Wherefore the proximate Cause of a Feaver (24) may have almost an Infinity of Causes efficient of it self.

27. Which are thus divided, into such as are particular to every one; or are universal, or are common to many, though not to all; as Air, Diet, and manner of living.

28. Therefore those Causes of a Feaver common to every one, are Epidemical.

29. Those which are more properly so (26) may be reduced under certain Heads, *a.* Somewhat acrid or sharp taken in, either as Food, Drink, Confections, or Medicines; endued with such Properties that cannot be digested, circulated or excerned, and taken in such a Quantity, that it irritates, obstructs and putrefies. *β.* Somewhat retained that should be discharged out of the Body, either through Sluggishness of the Faculties, or Melancholly; or through Remission of wonted Exercise, Obstructions, &c. *γ.* Too great Agitation of the Mind or Body, or too great Heat. *δ.* From applying externally, things sharp, corroding, pricking, lacerating, burning, and inflaming. *ε.* Those things which very much disturb the Motion of the Fluids, as many things do both internal and external; Hunger, Evacuation, Matter, Water, the *lebor* of Hydropick Persons, or those who have an *Emphyema*, a Stagnation of sharp *Serum*, enraged Choller, Inflammation, Suppuration, Gangreen, Cancer, too much Watching, hard Study, being too much addicted to Venery, &c.

30. The Effect of the Feaver, is a brisker Expulsion and Propulsion of the Fluids, a shaking of

of what was stagnated, a promiscuous mingling all things together, breaking through Resistances, Concoction, a Secretion of what is concocted, and a Crisis of that which by its *Stimulus* and Coagulation produced the Fever; the Alteration of what before was healthful into such a disordered State, as is apt to produce that which the Patient has not been accustomed to; as Thirst, Heat, Pain, Restlessness, Weakness, Lassitudes, Heaviness, and Belchings.

31. The sooner the *Lentor* is to be dissolved (20) and the *Stimulus* abated (17) by so much more favourable will the Fever be much shorter, and more salutiferous; and *e contra*. But on both sides the Event will vary according to the different Aggravation and Complication of Symptoms.

32. And upon this Account it is that a Fever does frequently the same as a Course of Medicine, in comparison of other Diseases.

33. Hence the Origin, Encrease, Height, Declension, Crisis, Change, and Termination of a Fever vary in every single Instance.

34. A Fever issues in Death, some other Disease, or in a Recovery of Health.

35. In Death, by destroying the Spring of the Solids, by too violent Motion; or when that can be preserved, by a disordered Fluid stopping the Passages necessary to Life, or the Circulation of those Fluid necessary to Nourishment. Hence Inflammations, Suppurations, Gangreens in the principal *Viscera*, in the Heart, Lungs, or Brain; or cancerous Ulcers in the first Passages, are frequently the Cause of Death.

36. It changes into some other Disease, when by too flight a Motion it injures the Vessels, and dissipating some of the Fluids, leaves the rest too viscid, or when by too languid a Motion, it is not sufficient to dissolve what is coagulated; or by depositing some critical Matter into some obstructed Vessels, either dilating or breaking them; hence purple Spots, Pustules, Erysipelas, Meazles, Phlegmons, Bubo's, Abscesses, Gangreens, Mortifications and *Schirri*.

37. They end in Health, when it dissolves the peccant Humours, renders it fluxile, and discharges it by insensible Perspiration; and at the same time by bringing the Fluids to a due Circulation, abates his own Violence. This Dissolution is almost the same in all Cases, as is taught (29) or *secondly*, when the peccant Matter is dissolved by the Fever, and rendered fluxile, yet retains such a Property as prejudices the Circulations, stimulates the Vessels, insomuch that it solicites some sensible Evacuation; hence Sweat, Spittle, Vomiting, Diarrhea's, Urine, generally happen critically about fourteen Days after the Concoction and the Height of the Disease.

38. And sometimes when the peccant Matter is so subdued and rendered fluxile and fit for Circulation, is in time again mixed with the healthful Juices, and continues its Course with them without any Crisis or other Symptom.

39. The Nature, Difference, and Distinction of an accute Fever, if it be observed from the first Attack to its Height, point out its Declension and Termination.

40. Wherefore

40. Wherefore from all these (1—40) a general Diagnostick and Prognostick is to be drawn in all Feavers.

41. The general Cure of every Feaver consists in observing. 1. The Strength of the Patient. 2. Correcting and expelling the irritating matter (17) 3. Dissolving the *Lentor*, (20) and mitigating the Symptoms. (30)

42. The Strength of the Patient is best preserved by Food and Drinks, as are easy of Digestion, Preventers of Putrefaction, Quenchers of Thirst, Provokers of Appetite, and contrary to the Nature of the Disease.

43. Food is to be given when the Feaver is off, or in its Remissions.

44. But in small Quantities, and frequently repeated; least too great a Burthen be laid at once upon the Bowels, and they be injured thereby.

The Quantity and Strength of Diet is to be determined.

1. By the foreseen Duration of the Feaver (31. 32. 33. 39. 40.) to 1. 4. 7. 11. 14. 21. 30. 40. or 60 Days; for so much ought to be allowed, as is sufficient to support the Strength, and able to promote Concoction and a *Crisis*. The more acute the Disease is, the more sparing and weak it ought to be, and *e Contra*.

2. From the Age of the Patient; for all Creatures bear Abstinence and spare Diet the less, the younger they are, and the nearer they approach to Old Age. 3. According to the Height and Aggravation of the Disease, also the Diet should be proportioned, both, as to its Quantity and Properties: In the Height it must be very light and

very small in Quantity; in the Declension, it may be allowed more in Proportion to its Degree of Declension. 4. From the Climate, for near the Equator a slenderer Diet will suffice, than towards the Poles. 5. From the Season of the Year; The Summer requires a very light Diet, but the Winter what is more substantial. 6. From the Patients way of living, and natural Constitution. 7. From a Weight, or Lightness after eating.

46. Any irritating Sharpnesses adhering externally, (as Points of Glass, Metal, Wood, Stone, or Officles, or the Application of Stimuli, Blisters, Causticks, or Poisons,) must be removed as soon as possible, and then the Place where they adhered, smeared with soft unctuous and oily Medicines, and with Anodynes, and gentle Apperatives.

47. Any irritating matter adhering inwardly, (as in Inflammations, Suppurations, Gangrenes, Mortifications, Cancers, rotten Bones, Ichor, Stagnant sharp Serum,) must be taken away or corrected by the Rules of Art.

48. Any irritating Matter circulating with the Juices, may be taken away or corrected by a proper use of the Non-naturals, and must be managed by Different Methods, according to the different Nature of the offending Humour.

1. When from too much Motion, by keeping both Body and Mind still; by Moisteners, Diluters, and gentle Lenitives.

2. From too hot an Air, by tempering by cool Exhalations, especially from some Plants suited to this Purpose, by subacid Nitrous Drinks, with a little Wine, by a Subacid Diet, that is cooling

and

and has not been accustomed to, and by Medicines of the same Properties.

3. When from an Air too moist, by a good Fire of Aromatick and Resinous Woods, and the Exhalation of Aromaticks.

4. When from a sharp putrefying Air, by burning Nitre, the Exploſion of Gun-powder, by the Steams of Vinegar, and burning Salt in the Fire.

5. From the Paſſions of the Mind; by overcoming them with Reasoning, contrary Affections, by variety of Objects, Anodynes and Opiates.

6. From an acrid acid Diet, by Diluters, Demulcents, Abſorbents, changing it into a compound Salt; the Aqueous, Gelatinous, and oily Parts of Animals, fat Earths, fixed Alkalie Salts, Volatile, and Simple will do the ſame.

7. From eating too largely, and of ſuch things as aſtringe the Stomach; by Deluting, Abſtinenſe, Vomiting, and looſening the Belly.

8. From a ſharp fermented or fermenting Drink, it is removed by the ſame means (No. 5 6)

9. From too much watching; by the ſame Remedies (1 2 5)

10. From a Retention of the Excrements; the Paſſages are to be lubricated, the Emunctories opened, the excretory Faculties are to be irritated and ſtrengthened; theſe are to be done by externals and internals.

49. The Emunctories are to be opened, by diſſolving and looſening the matter obſtructed, by Bathing, Fomenting, Friction, Shaveing, cleaning the Skin, by Epiſpaſticks, Alexipharmicks.

50. What obſtructs the Capillaries by too much Blood, whereby the Veſſels are too much crowded

crowded, is to be dissolved by Blood-letting : This is known by the Symptoms of a *Plerorha*, See *Grounds of Physick*.

51. What sticks in the Cappillaries by a Contraction of the Fibres, is to be removed by relaxing those Fibres; and that is to be done by deluting, cooling, resolving, absterging, and removing that acridity which causes the Contraction, which last is to be done by aqueous Medicines, internal and external, applied or drank warm, and by the Exhibition of Sweetners, and things oily.

52. What obstructs by its own Viscidity and *Lentor*, is to be dissolved by several means, the chief of which is by a Resolution of the Feaver it self, so as with it the Coagulation may go off, (30 32 36 37.) to which Purpose it is necessary, that its Force be so abated, as to prevent any Danger (α) of Inflammations, Suppurations, Gangrenes, or Mortifications, (35) the Approach of which is to be known by the Height of the Symptoms, especially by the Heat considered with the Constitution of the Solids at the same time. (β) nor must the Fluids be dissipated by too much Motion: This is known by the dryness of the Nostrils, Eyes, Mouth, Throat, Tongue, Hoarseness, a dry Skin, scarcity of Urine, a small, quick, and unequal Pulse. (γ) nor before Concoction by cooling too much, so that the peccant matter cannot be subdued, dissolved, moved, secerned, and discharged the Body: This is known when all the vital Actions flag together, without any apparent Sign of a *Pepasmus*.

53. If it be too exorbitant, it is to be moderated by Abstinence, a slender Diet, drinking Water,

a cool Air, an even Disposition of Mind, Blood-letting, cooling Glysters, by Medicines gentle, Glutinous, Cooling, Anodyne, and Opiate.

54. If it be too slow, it is to be raised by Cordials, and a richer Diet, by a warm Air, exciting the Passions, by stimulating Medicines, volatiles, Aromaticks, Friction, Heat, Motion, Baths, and Fomentations.

55. The next Remedy (52) by which Viscidity is removed, is raising the Spring of the Solids, subtracting from the Quantity of the Fluids, plentifully and suddenly, by a large Orrifice, encreasing Motion at the same time, by such means as stimulate the Fibres.

56. Thirdly, the same Viscidity is removed by diluting, drinking, bathing, fomenting, by Glysters, and Frictions.

57. All these things are best assisted in bringing about this End, if at the same time, warm Aromatick Bitters are given inwardly.

58. To the successful, speedy, safe, and effectual Operation of all which, takeing away some Blood at first is of great Service; for it contributes to their Incorporation with, and Action upon the Fluids.

59. At the same time as the Viscidity is broke by those means (52 53 54 55 56 57 58) by their Continuation, it will be expelled: Tho' it is often so corrected as not to need Expulsion.
(37)

60. The Symptoms arising from a Simple acute Feaver, are principally these; Cold, a Tremor Anxiety, Thirst, Nauseousness, Belching, Vomiting, Weakness, Heat, Drought, Dilirium, Convul.

Convulsions, Sweat, a Diarhea, Puffles and Spots.

61. All which (60) as they arise from a Fever (24 30) as soon as the Cause is removed (37 38 41—60) they will cease; and therefore if the Patient can bare up so long without Danger, there will scarce be any need of a particular Cure.

62. But these frequently arise from some critical Struggle of Nature, or an Endeavour to throw off some thing by a Crisis, at which times they are not to meddled with.

63. But if they happen inseasonably, or with too much Aggravation, so be born with without Danger of Life, or are likely to bring on some worse Disease, then they are to be encountered by proper Remedies, regard being always had to the Cause, (29) and Height of the Disease. I shall now examine every Symptom in its Course.

Of the Cold Fit.

64. **T**he Cold Fit in accute Feavers, arises from a greater intestine Motion of the Fluids amongst themselves, and a Diminution of their Progreis in the Vessels; by a Diminution of the circulatory Motion, the Fluids Stagnate in the Capillaries; the Heart is less contracted; the Evacuations are lessened, and the Spirits flow less into the Brain.

65. If it continues long, it occasions *Polypæ* in the larger Vessels, and concretions about the Heart; but in the smaller Vessels by squeezing, discharges some of their Contents, hence many and bad Symptoms upon both Accounts.

66. Hence

66. Hence appears what is to be done, and what to be prognosticated; and why the Feaver encreases in Proportion to the intenshels of the Fit. In a Pestilence the Cold is greatest, and likewise is to the subsequent Heat.

67. The Cold by Reason it very much stimulates, howsoever it be managed, it often occasions afterwards Inflammations. Hence pungent Salts, Aromaticks, Oleous things, Viscicatories and the like are to be condemned.

68. It is best managed by the following Method.

R. Aq. hord. ℥ss.

Cristal. mineral. ℥iij.

Aq. Epidem. ℥ij.

Syrup. paoni. C. q. s. ad gratiam M. F.

Julap. de eo bibat, sumend. Bolum seq. 6ta quaque hora repetend.

R. Cristallor. mineral. ℥ss.

Tartar. vitriolat. gr. vii.

Conserv. fruct. cynob. & spir.

Vitriol. an. q. s. M. F. Bolus sumend. & super. bib. haust. julap. ante prescript.

R. Capitis ovis mactat. cum lana confract. (demp. tis lingua & cerebro) coq. in. aq. q. s. ad ℥vj.

Let the strained Liquor be for a Fomentation, either by Bathing, Steam, or Lotian.

R. Ol. Palma ℥ij.

Ol. N. M. spir. Lavend. C. an. ℥j.

M. F. Frictio Blanda.

69. These (68) being applied, the worst Symptoms (65) soon go off.

The Shakeing Fit.

70. **I**N the Shakeings, the Muscles are both in Tension and Relaxation; the Causes of either

either State involuntarily succeeding one another, the Influx both into the Arteries and Nerves of their respective Fluids, sometimes stopping, and then again going on, wherefore in the Beginning of the Disease they are both the same, towards the End there grows a want of both by too great a Wast.

71. By a long Continuance the Circulation will be stopped, and appear all the Mischiefs arising from thence.

72. Hence are to be had the Diagnosticks, and Prognosticks, and the Reason why cold brings on Shaking. (64) Why violent Shaking is so bad. Why Shaking arises from great Passions of the Mind? Why just before Death? Why after great Evacuations? Why after drinking too largely.

73. This is to be cured by restoring a due Influx both into the Nerves, and Arteries: In the Beginning that is to be done by such things as dissolve the *Lentor*, and give Strength (49—60) but towards the Termination, by those things which recruit what has been wasted, and Strengthen the Fibres and *Viscera*: To which Purpose in the End.

R. Pulv. ē chel. cancror. comp. ʒj.

Rad. Serp. Virg. gr. vii.

Antimon. diaph. gr. xv.

Consell. Fracastor. ʒss.

Syr. croc. q. s. M. F. Bolus 6ta quaque hora sumend. superb. haust. julap. seq.

R. Aq. cerasor. n. borrag. meliss. an. ʒiij.

Poeon. C. cordial. Saxon. an. ʒj.

Marg. pfs. ʒiv.

Sach. crist. q. s. M. F. julap.

Let the Patient drink of it in the Intervals; and after a Sweat rises, sup frequently of Mace-Ale, or Posset-Drink.

Rx Bol. armen. ver. corall rubr. a ʒj.

Confect. Fracastor. ʒj.

Aq. Theriac. ʒij.

Cerasor nigror ʒiij. M.

Let it be divided into two Doses, to be taken at six Hours distance.

Rx Aq. Hord. ℥ij.

Syrup. de rub. Idæo ʒiss.

Papav. alb. ʒss.

Spir. salis dulc. ʒij. M. F. Julap. to be taken at times between the two former Doses.

Let the Patient proceed warily in the use of these things till the Fit goes off.

Of Anxiety in a Fever Fitt.

74. **A**Nxiety arises from a Hindrance of the Blood's Passage out of the Heart; and therefore it cannot get through the Capillaries of the Lungs, nor pass the *Aorta*; either by a convulsive Contraction of the circulating Vessels, or by some inflamed Matter, rendred unfit for Circulation; the same Symptoms are observed to arise from a Stoppage of the Blood's Passage thro' the *Porta*, from the like Causes; whereby all the reflux Blood which was carried out by the coeliac and mesenterick Arteries cannot get back, it stagnates, extends the Vessels, resists the Circulation in the Arteries, and produces all the Mischiefs arising from thence; it is plain that both these Causes of Anxiety should be carefully observed and cured.

75. If therefore such Anxiety (74) continues long

long about the principal Parts, it occasions *Poly-
pe*, Concretions, Inflammations, sudden Gan-
greens, with an intollerable Oppression, and sud-
den Death. If the Seat be in the Hypochonders,
then the greatest Complaint will be at Stomach,
the other Bowels being not endued with such a
quick Sense; hence proceeds sudden Putrefactions
in the larger and weaker Vessels, whence Gan-
greens and Rottensness of the Liver, and a pa-
trid Dysentery.

76. Hence a Physician very well distinguishes
what the Anxiety is (74, 75) and its Cause, and
what is to be prognosticated; and at the same
time, when the nervous System is only affected
without an antecedent Fever, and when it pro-
ceeds from Inflammation, which discovers it self
by its peculiar Symptomes, whence comparing
them with their Height, Duration, and Seat of
the Distemper, he wisely discovers all that is ne-
cessary to his sanatory Purposes. Why almost
in every Disease near the Point of Death, it closes
the Tragedy. Why a convulsive Anxiety is but
little, and the Inflammatory very dangerous. Why
Inquietude, Tossing about, Difficulty of Breath-
ing, and obstinate Watching in Inflammatory Dis-
eases, are sure Tokens of Death.

77. Hence appears what various Methods are
needful in the taking off the Severity of this E-
vil, all which are to be known from the Nature
of the Symptoms. When therefore the Cause is
discovered to be of the convulsive kind, it is to
be removed by Vescicatories, and Alexipharmicks,
joined with Opiates.

R. Pul.

℞ Pul. e Chel. Cancr. C. ʒj.
 Antim. Diaph. gr. viij.
 Cast. gr. v.
 Croc. Brittanica. gr. iij.
 Conf. Alkerm. q. s. M. F. Bol. sumend. 6ta quaq;
 hora superbibendo decoct. seq.
 ℞ Rad. Eryng.
 Scorzon. Hisp. a ʒij.
 Chin. ʒss.
 Passul. Min. ʒiss.
 Coq. in aq. fontan. ℥vj. ad ℥iv. infunde.
 Cinnam. ac. ʒiij.

Sem. Fanicul. ʒss. f. Apoz. de quo bibet liberè.

Let the Patient be let Blood again, even to Fainting.

Apply Blisters to the Arms and Thighs.

Give Vomits and Purges, &c.

The Mind is to be kept easy.

The Fibres, Vessels and Bowels are to be relaxed.

The nervous Fluid must be moderated with Anodynes and Narcoticks.

When it appears to arise from an Inflammatory Cause, the above recited Means are proper; with the Addition of large Dilution with warm Liquors, and such as are nitrous, subacid, and gently aromatised; and frequent Clysters in small Quantities, if they can be retained.

78. Truly if in any Case whatsoever a speedy and careful Cure is called for, it is in this.

These Matters being explained as succinctly and methodically as I could; I now hasten to intermitting Feavers; which I shall likewise touch upon but very briefly, passing by the other Symptoms of acute Feavers, viz. Thirst, Nauseousness, Vomiting,

Vomiting, Weakness, Heat, *Delirium*, *Coma*, Convulsions, Sweat, a *Diarrhea*, Spots, a continued Fever, a continued putrid Fever, a burning Fever; and recommend my Readers to Dr. *Sydenham* and *Pitcairn*, a *North Britain*, and other eminent Physicians; desiring (with God's Blessing, and if my Life be spared, to be larger here-upon some other Opportunity.

Of a Burning Fever; or the Hot Fit.

A Burning Fever, deserves particularly to be considered, both because of its Frequency and Difficulty of Cure.

Its chief Symptoms are Heat, almost burning to the Touch, unequal in different Parts, as hottest near the principal Parts, emitting the inspired Air, almost kindled (though it is more remiss in the Extremities, and sometimes not perceivable) a Driness in the Skin, Nose, Mouth; the Tongue dry, yellow, black, parched, and ruff; an insatiable Thirst, a nauseating of Food, Vomiting, Anxiety, Inquietude, Weariness, a short Cough, a *Delirium*, a Phrensy, over Watching, a *Coma*, Convulsions, and growing worse every other Day.

Its Cause, from too much Labour, Heat of the Sun, going too long thirsty, the Use of Heaters, Fermenters, Aromaticks, and too much Exercise, especially in the Heat of Summer, &c.

On the third or fourth Day 'tis often fatal, and rarely gets past the seventh; it often goes off with a Hemorrhage, which may be foreseen by a Pain in the Neck, a Weight upon the Temples, a Dimness of the Eyes, a working of the *Præcordia* without a Sense of Pain, involuntary Tears, a high Colour, a Matter from the Nose, and is the best on a critical Day, when it is relieved likewise sometimes

sometimes with Vomiting, Stools, Sweat, Urine, or Spitting. If the Urine be black, in small Quantity, and thin, it is fatal; as in spitting Blood, bloody Urine, a Difficulty of Swallowing, a Coldness in the extream Parts, the Face high coloured and sweaty, or the Belly too loose. With a Twitching it goes on to a Delirium, and thence to Death. It is often attended with a Peripneumony and a Delirium together, which after long Pains of the Bowels is fatal.

Which being premised, this Disease and its Causes are easily known; for it arises from the Blood's being robbed of its soft and thinner Parts, attended with an Inflammation all o'er the Body; the Prognosticks are to be deduced from hence.

The Cure requires a clear, cool Air, often shifted, and Cloaths not burthen some or stifling; the Posture of the Body often erected, Plenty of Drink that is soft, cooling, subacid, and warm,

R. Rad. Scorzon. Hisp. ℥ij.

Torment. ℥j.

C.C. ℥vj.

Coq. in aq. font. ℥iiss. ad ℥iiss.

Colat. adde Syrr. Limon. ℥iiij. M. F. Apoz.

R. Cristall. min. ℥ss.

Cons. fruct. Cynosb. ℥ij.

Ol. Sulphur. per Campan. gut. ij. F. Bolus s^m mend 4ta quaque hora haustu Apoz. prescript.

The Cure requires a light Bread Diet, and subacid Fruits, with the Repetition of gentle Clysters and Diluters.

If there is great Anxiety or Signs of a Delirium, it is not to be imagined of what vast Service Blisters will be; wherefore in such a Case, let

more or less Blisters be applied, as there is occasion, either to the Neck, Arms, or Thighs.

There are no Means observed to act with so much Efficacy as Blisters, in withstanding growing Coagulations, and Stagnations, in any Age whatsoever the Patient is.

To these may be subjoined Medicines moderately loosening the Belly.

E. G. R. Aq. Hord. (cui flaved. cortic. aurant. incoxerint) ℥j.

In qua dissolv. mann. calabr. ℥ij.

Crem. Tart. ℥ij.

Colatura add. Ol. Sulph. vel Succ. Limon. q. s. ad gratam aciditatem.

With which whosoever observes the general Rules in all acute Distempers, will easily fall in with the proper Means to be used in burning Feavers,

Of an Intermitting Feaver.

78. **B**Y what has foregone, it will easily appear, what Judgment is to be made concerning the Diversity of acute Feavers, for what at once raises a Feaver, and keeps it up to the end in the same Tenour, we call *continued Feavers*. Those Feavers which peridiocally remit, and rise again without ever the Feaver quite going off, are termed *continued remitting Feavers*: but those which at certain Periods quite go off and return again, are *intermitting Feavers*. The Diagnostics of an *Intermittent* are plain; their Distinction into various Classes is easy, according to the Times of their Returns.

81. Yet we must take notice, that all which happen from *February* to *August*, are termed *Vernal*, and those Autumnal which reign from *August* to *February* again. A

A very necessary Distinction upon account of their different Shapes, Symptoms, Terminations, Durations and Cure ; for sometimes one drives out the other.

82. Moreover, commonly in the beginning of Autumn, they appear like *continued*, by their Length and double Paroxysms, although their Nature is different, and requires a different Management.

83. The Fit begins with Yawning, Stretching, Lassitude, Weakness, Cold, Horror, Rigour, Shaking, Paleness of the extream Parts, Difficulty of Breathing, Anxiety, Nauseousness, Vomiting, and the Pulse quick, weak, and small. According to the Intensity of these Symptoms, and the number of them at the same time, by so much will the Fever be more severe, and in the following Stages will the Heat be the greater, and all other Symptoms proportionably aggravated ; and this first Stage when it comes so near to the Nature of a *continued Fever*, is most dangerous. The Urine then for the most part is crude and thin. This Stage (83) is followed by another, beginning with Heat, Burning, hard Breathing, Anxiety decreasing, a larger Pulse, and stronger, a great Thirst, a great Pain of the Head and Limbs, and the Urine for the most part red, like that in the Height of a *continued Fever*.

85. At the last arises a large Sweat, a Remission of all the forementioned Symptoms, a turbid Urine, with a Sediment like Brick-dust, Sleep, a perfect Absence of Heat, Lassitude and Faintness.

86. An Intermittent in its Progress thro' these 3 Stages (83, 84, 85) very much strain the Vessels and *Viscera*, by stagnating, obstructing, coagulating, forcing,

forcing, resolving, and attenuating, hence the Solids are debilitated, and the Fluids are distempered, particularly by not having their Parts sufficiently assimilated and mixed, whence arise Acrimonies; from all which proceeds a great Inclination to Sweat, even the viscid Parts of the Blood ouzing out thro' the cutaneous Pores; the Urine then becomes very thick, turbid, mealy, and greasy; the Spittle the same; the Blood being robbed of its best Parts, becomes both sharp and siezy; whereby from the Injurys of the Solids, and the Distemperature of the Fluids, these Feavers sometimes last a great while; after which, sometimes they terminate in chronical Diseases, the Scurvy, Dropsy, Jaundice, Leucophlagmatia, and schirrous Tumours in the lower Belly, from which proceed divers other Mischiefs.

87. Otherwise unless they are attended with Malignities (86) they dispose to long Life, freeing the Body from many ill Humours.

88. From all which, upon an Examination, the whole History of *intermitting Feavers* (79—88) the proximate Cause appears to be in the Viscidity of the Blood, followed by quicker and stronger Contractions of the Heart, whereby it is again broke and divided.

89. Wherefore as this is the Course of an *Intermittent* (83—84) it is manifest that whatsoever can withstand its first Attack (83) and principal Cause (88) is sufficient to take away the whole Fit.

90. An infinite number of Causes, and those very minute, may bring on the first Stage (83) of an *Intermittent* (79) and a great many of them may possibly grow in the Body it self, encrease, and in a given Space of time, arise to Maturity.

91. To

91. To the Cure is required Saline Openers, Alcalies, Aromaticks, Minerals, Diluters, Warmth, Motion, and Friction, which are to be used in the Intervals of the Fits.

92. If the *Primæ viæ* are foul, Purging and Vomiting may be of use, which are best used before the Fit. When this is to be done, may be known by the preecedent Symptoms, a Nauseousness, Vomiting, Belching, Foulness of the Tongue, and Palate; and before the Fit returns, the Hurry of Humours occasioned thereby may be appeased by a Paragorick.

93. This Method is useful, (92) as after the manner of a *Stimulus*, it answers both purposes, (92).

94. But if it weakens much, it may be hurtful; as it draws off the thinner Parts, and disturbs the necessary Digestions; and thereby prolongs the Distemper, or brings on Death.

Both the cold and hot Fit are often prevented by a Sudoriffick given an Hour before the Fit returns, and followed by Plenty of Liquids and Diluters, that the Sweat be kept up two Hours after the Time of the hot Fit's Accession.

95. Herein Bleeding of it self is always hurtful, with some Means it may be of use, as also a sparing and exact Diet.

96. While the Fever is in the (84) Stage, thin things are indicated, and such as are actually warm, subacid and nitrous Apparients, Rest, and the Patient may be thin covered.

97. After the Fit is over (85) vinous Praisans, and Broaths, with such attemperating Decoctions, as assist Sweat and Urine are of use.

98. More

98. Moreover, Always encounter the predominant Symptoms, according to the constant Rule in accute Cases. *Life consists in a certain MEDIUM.*

99. After the Fever is past, the Patient must be raised by a strengthening Diet; and after a Recovery of his Strength, he must be purged two or three times.

100. But in severe Autumn Intermittents, when the Patient has been much weaken'd, the Distemper has continued long, and here appears no Inflammations, nor Suppurations of Matter, nor Obstructions of the Bowels, then the Peruvian Bark is to be used, in the Powder, Infusion, Extract, Decoction, Syrup, or any other proper Form, given with proper Specificks, given in the Intervals of the Paroxysms, and observing a suitable Regimen.

101. In order to the particular Cure of particular Intermittents, it is to be taken Notice, 1. The shorter the Intervals are, the sooner they may be cured, and *à contrà*. 2. By that means, they approach the nearer to the Nature of a continued kind, and are more easily changed into it. 3. For this Reason also the Cause may be more powerful, but more moveable. Hence *Vernals* go off themselves upon the approaching Heat. 5. *Autumnals*, by the growing Colds are exasperated, and made worse.

Having thus faithfully gone through the *Grounds of Physick*, and the *Appendix*, who will not, upon comparing them together, admire the Art of Medicine? For that has in its Care, that that most Noble Part of Man may be preserved in its Vigour and Strength, by whose Direction all things are managed, either great or commendable. What Instructor is there more solicitous about Life, and Temperance, than Medicine? What is more powerful to moderate Anger, banish Fear, avoid Luxury, or intemperate Venery? Who is not sensible that whatsoever is excellent in Man, whether Arts, Sciences, Learning or Vertue, are owing to this most noble Faculty?

You have made a very good Improvement of our Grounds of Physick, and I congratulate your happy Progress therein.



FINIS.